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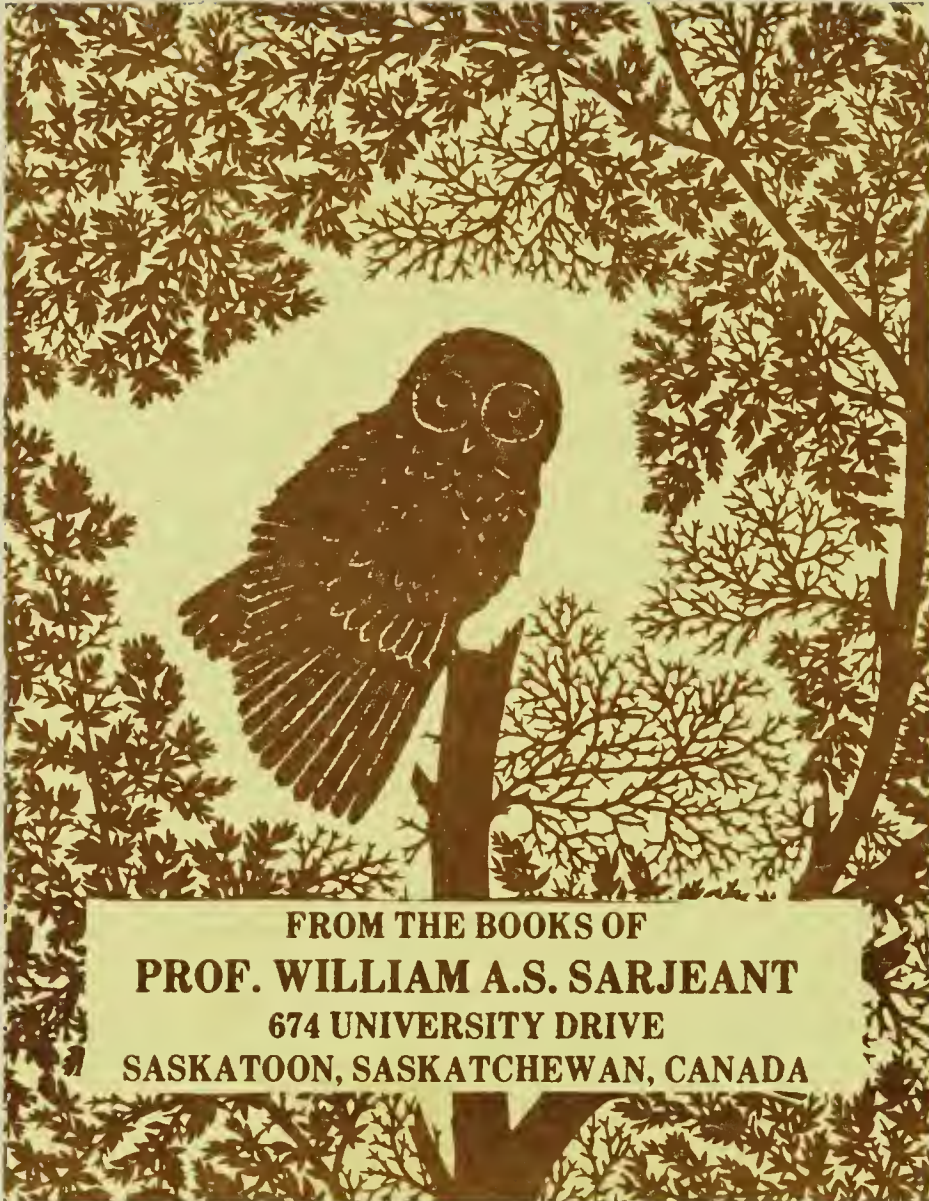


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William A. S. Sargent

BLUE JAY

March 1989



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THE SILKY MILKWEED IN SASKATCHEWAN

VERNON L. HARMS, Fraser Herbarium and Biology Department, University of Saskatchewan, Saskatoon, Saskatchewan, S7N 0W0 and RICHARD M. DUNBAR, Box 30, North Portal, Saskatchewan. S0C 1W0

In 1954, a milkweed specimen was sent in for identification to the University of Saskatchewan, at Saskatoon, by Mr. Harold Longney, with information that it had been collected in the Souris River Valley near Roche Percee. Correctly determined as *Asclepias syriaca* L. by Dr. R.C. Russell in 1954, this single specimen, filed in the W.P. Fraser Herbarium (SASK), represented the only known collection of this species in Saskatchewan for 34 years. It was reported as a provincially rare species on this basis.¹ Subsequent to the 1954 Longney collection, the Silky Milkweed had never until now been reconfirmed from Roche Percee nor had it been found from anywhere else in the province.

Last summer Dunbar contacted Harold Longney, the original collector, and was shown the site of the original collection. The Silky Milkweed colony had multiplied from "only 12 stems found" in 1954 to about 200 plants in 1988. The former general designation of this collection locality as "Roche Percee" can now be given more precisely, about 5 mi. east and 0.25 mi. north of Roche Percee (about 0.5 mi. north of the former Pinto C.P.R. station) in SW 36-1-6-W2. The site is south of the river, and north of the valley road, on the upper floodplain of the Souris Valley. Another specimen was collected to document the continued survival of this species (1 July 1988, R. Dunbar s.n., SASK). This is still the only known site of the Silky Milkweed in Saskatchewan. It should be looked for in southeastern Saskatchewan, especially along the lower Antler and the Souris River valleys.

The distribution map of Silky Milkweed shown in Fig. 1, plotting Saskatchewan site and the known records of this species in Manitoba and the neighboring United States, derived from herbarium specimens: SASK, UWPG, MMPN, and WIN, and from various regional floras and atlases.^{7 4 5 6} The Saskatchewan colony of Silky Milkweed is at the northwest limit of the species' natural range.

There are four other Milkweed species that are known to occur in Saskatchewan. These are the Downy Milkweed (*Asclepias ovalifolia* Don), the Green Milkweed (*A. viridiflora* Raf.), the Whorled Milkweed (*A. verticillata* L.) and the Showy Milkweed (*A. speciosa* Torr.). The Whorled Milkweed is another very rare species in Saskatchewan known in the province only from two sites in the Souris River valley about 2 and 3.5 mi. west of Esterhazy respectively.²

Milkweed flowers are structurally quite complex and unique. In addition to a calyx and corolla of five basally fused sepals and petals, respectively (these reflexed at maturity in most species) there is an elaborate upper corona (or crown). This consists of a ring of five petal-like appendages called hoods which are attached to the stamens and corolla bases, alternating with the petal lobes. An incurved bract called a horn, or crest, protrudes from within the hood of all of our milkweed species except the Green Milkweed. The filaments of the five stamens are closely coherent and the anthers

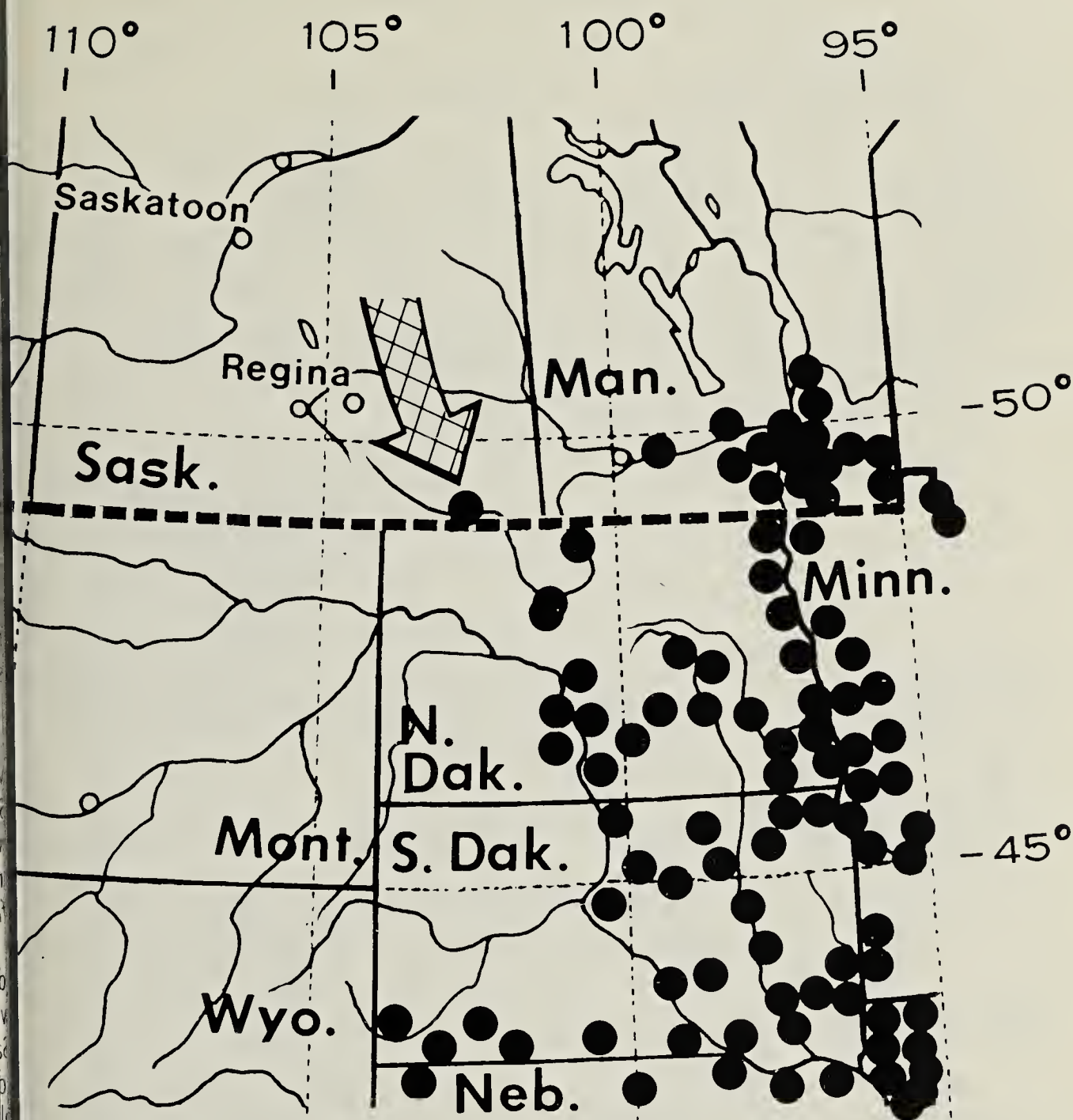


Figure 1. Recorded distribution of the Silky Milkweed on the Northern Great Plains. (The arrow indicates the Saskatchewan record.).

erent to the broad disk-like stigma. Pollinating insects alight on the shiny nematic surface; their legs slip off onto the anthers, where they pick up "sadbags" of pollen masses (called pollinia) to be carried to the stigmas of other flowers. The adherent anthers and stigma together form a cone-like structure called the gynostegium. Also unusual among flowering plants, in reverse of the more usual situation, is the fusing of the two carpels at the upper end and stigma while the ovaries

remain separate. This situation occurs only in milkweeds and dogbanes. The ovaries mature into follicle-type fruits, eventually splitting open along a single upper seam to release numerous flattened seeds each bearing a terminal tuft of long silky hairs, the coma (see fig. 2).

The Showy Milkweed is the species most likely to be confused with the Silky Milkweed. These two species are our showiest milkweeds; both are tall stout perennials, producing showy clusters of

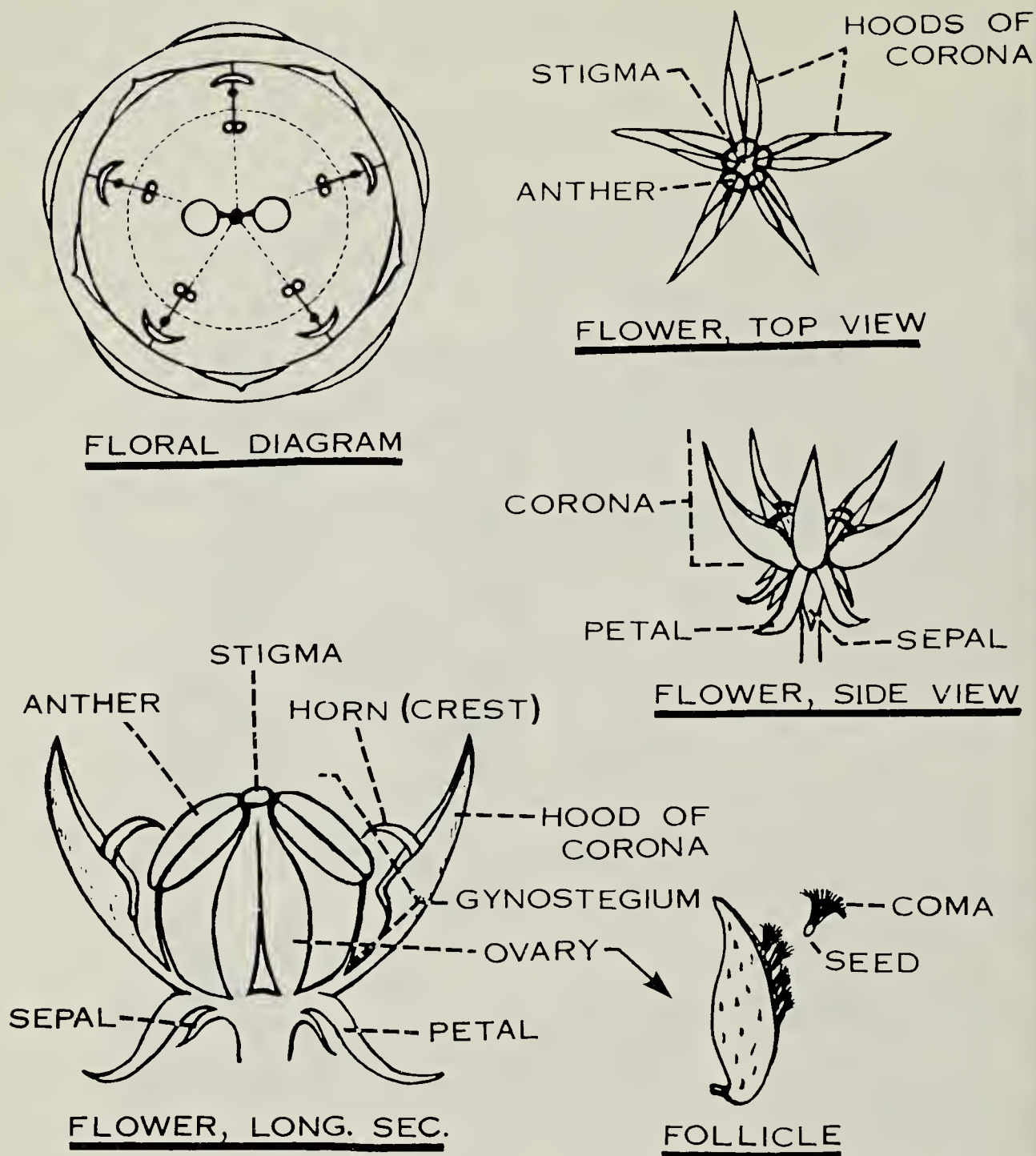


Figure 2. Structures of a milkweed flower.

rose to purplish-red flowers, with incurved horns from the corona hoods. Their leaves are broad, distinctly stalked, and densely soft hairy (tomentulose) beneath. The large pods (follicles) have tubercles (rough projections). The two species can be distinguished from each other by the characters given in Table 1. The shape of the corona-hoods, the most distinctive differentiating character, is depicted in Figure 3.

It is noteworthy that the Si Milkweed is located within one mile three other provincially very rare species, Indian Grass [*Sorghastrum nutans* (L.) Nash], White-flowered Parsley (*Lomatium orientale* Coult. Rose), and Climbing Bittersweet (*Celastrus scandens* L.), the latter known elsewhere in the province only from the collection of Estevan.² Also within the same section, but north of the Souris River (NE 36-1-6-W2), have been found several other plant species that have been listed as rare for Saskatchewan. These are

Table 1. COMPARISON OF SHOWY AND SILKY MILKWEED

| Characters | Showy Milkweed (<i>A. speciosa</i>) | Silky Milkweed (<i>A. syriaca</i>) |
|--|--|--|
| Corolla-hood length | 10-13(-15) mm 2 x gynostegium length | (3-)4-7(-8) mm 2 X gynostegium length |
| Corolla-hood midrib | dark-colored throughout | not, or only partly, dark-colored |
| Corolla-hood terminus* | abruptly narrowed at/below mid-length to form a conspicuous, prolonged, lance-oblong, tongue-like, terminal appendage at least 5 mm long with apex acute | either not abruptly narrowed to a tongue-like terminal appendage, or less conspicuously, with narrowed terminal portion short, less than 3 mm long |
| Flower diameter | 15 mm | 15 mm |
| Flower no./cluster | 21 | 20, usually 25-30 |
| Petiole (leaf-stalk) length | 7 mm | sometimes longer to 10(-15) mm |
| Pubescence of pedicel, peduncles & upper stems | densely white-tomentulose, or velvety, the tomentum more minute, only about .3 mm thick on surfaces | densely white-tomentulose, tomentum to about 0.5 mm thick on surfaces |
| Pubescence of leaf undersurfaces | densely tomentulose | densely to more thinly tomentulose |
| Plant height | to 1 m | usually 1-2 m |

* Best (i.e. most distinctive and least subtle) distinguishing characters.

hannyberry (*Viburnum lentago* L.), White Milkwort (*Polygala alba* Nutt.), Lambert's Locoweed (*Oxytropis lambertii* Pursh), Tomentose Pussytoes (*Anemone neodioica* Greene), American Plum (*Prunus americana* Marsh), Western False Gromwell [*Onosmodium occidentale* Michx. var. *occidentalis* (Mack.) Johnston], Side-oats Grama [*Bouteloua curtipendula* (Michx.) Torr.], Switch Grass (*Panicum virgatum* L.), Big Bluestem (*Andropogon gerardii* Vitman), and Cowfoot Violet (*Viola pedatifida* G. Don).³ In the author's present opinion, the latter two species (i.e. Big Bluestem and Cowfoot Violet) have now been found with greater frequency, and should be removed from the provincial list of rare plants.

Acknowledgements

We gratefully acknowledge the cooperation and kind assistance of Mr. Harold Longney, North Portal, and the respective curators of the afore-cited herbaria.

¹ HARMS, V.L. 1987. The Roche Percee - Pinto area, Souris River Valley: A center of provincially rare plants. *Blue Jay* 45:74-82.

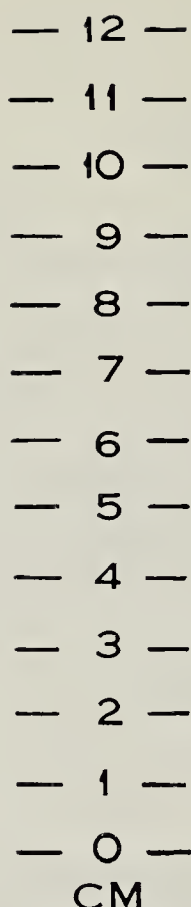
² HUDSON, J.H. 1958. New plant records for Saskatchewan, 1957. *Blue Jay* 16:20-21.

³ MAHER, R.V., G.W. ARGUS, V.L. HARMS and J.H. HUDSON. 1979. The Rare Vascular Plants of Saskatchewan. *Syllogeus* No. 20, National Museum of

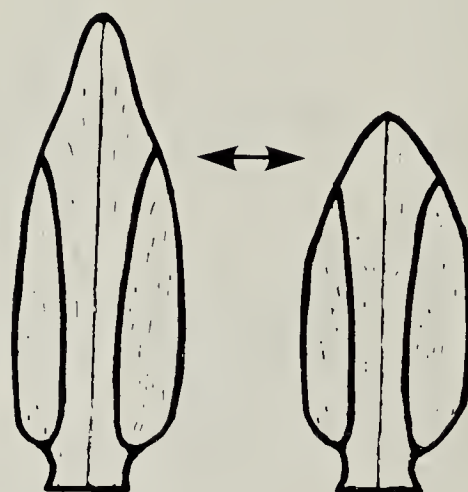
(tongue-shaped terminal portion
about $\frac{1}{2}$ the total hood length)



**SHOWY
MILKWEED**
ASCLEPIAS SPECIOSA



(tongue-shaped terminal
portion absent or short)



**SILKY
MILKWEED**
ASCLEPIAS SYRIACA

Figure 3. *Corona-hood shapes of the Showy Milkweed and Silky Milkweed*

Natural Sciences, Ottawa, Ontario. 55 pp.
+ maps.

⁴ MCGREGOR, R.L., T.M. BARKLEY and the
GREAT PLAINS FLORA ASSOCIATION.
1977. Atlas of the Flora of the Great Plains.
The Iowa State University Press, Ames, Iowa.
600 pp.

⁵ SCOGGAN, H.J. 1957. Flora of Manitoba.
Biological Series No. 47, Bulletin No. 140,
National Museums of Canada, Ottawa,
Ontario. 519 pp.

⁶ SCOGGAN, H.J. 1979. The Flora of Canada,
Part 4. National Museum of Natural Sciences,
Publications in Botany, No. 7(4). pp.
1117-1711.

⁷ HOLMGREN, P.K., W. KEUKEN and E.K.
SCHOFIELD. 1981. Index Herbariorum. Part
I - The Herbaria of the World 7th edition.
Bohn, Scheltema & Holkema, Utrecht,
Netherlands. 452 pp.

EDITOR'S NOTE:

The Crowfoot Violet was cited in Rare
Plants of Saskatchewan because of serious
decreases due to habitat destruction.
It may since have been found at "too many"
locations, but how many of those loca-
tions still exist? The same may apply to Big
Bluestem.

7th ANNUAL SASKATCHEWAN CHRISTMAS BIRD COUNT - 1988

Compiled by WAYNE C. HARRIS, Box 414, Raymore, Saskatchewan. SOA 3J0

The 1988 Christmas Bird Count is now history and the phrase "records are made to be broken" certainly applies to the results of this year's counts. One hundred and forty-five observers participated in a record number of counts (84 exceeding 1986's 83) produced 94 species on count day plus additional species during the count period totalling Saskatchewan's first century for the count period exceeding 100 years 99. All of this was accomplished during the 19 day period from 16 December through 3 January. Following are some of the highlights of the counts and the patterns and significance of some of the results.

The counts

Following this introduction is a list of the counts and the names of those who participated in them and the coverage and weather conditions for the individual counts (Table 1). Although fewer people participated this year than last, 545 is still an impressive number for a province with less than one million people.

Table 2 provides a list of the commonest species and the counts on which they were seen followed by Table 3 the species reported from 5 or fewer localities and finally Table 4 those birds identified to species. The counts on the largest number of species as well as the most come from the large urban centres such as Regina and Saskatoon or areas with unique features such as open water at Gardiner Dam and Squaw Rapids or contrasting vegetation such as the Cypress Hills. This year the highest total number of species came from Gardiner Dam where, bolstered by 14 species of water-

fowl from a wide open Lake Diefenbaker, the species' total reached 43. This was followed by Fort Walsh with 37, Saskatoon with 33 and Somme with 31.

The new

Two species never before recorded during the 47 year history of the count were found - both on the Gardiner Dam count. The first was an adult Thayer's Gull found on the open lake. This arctic nesting species normally spends its winters on the coasts of North America and although rare inland there are several recent records for this species during the fall migration in southern Saskatchewan. Thus it is not a total surprise that this species should show up on a Christmas bird count especially considering that the similarly-ranging Glaucous Gull has been found regularly during the past 15 years, especially at Gardiner Dam.

The second new species was a single Wood Duck found by Paul Chytyk and Bob Kreba below Gardiner Dam after the lake had frozen over a few days after the count but in the count period. This species is not uncommon in eastern Saskatchewan during the summer months especially along the Souris River system. Farther west they are rare wanderers and this one obviously decided to stay late.

The addition of these two species to the all-time list raises it to 145 species on count day plus 6 additional species during the count period for an overall total of 151 species.

The rare

Table 3 provides a listing of the species recorded the fewest times (less than five occurrences). Some the highlights of the rare species include a Red-necked Grebe found by Sheila Lamont on the open water of the power channel at Squaw Rapids. This is only the second Christmas record, the first being 21 years ago at Regina. The Great Blue Heron found by Donald Hooper at Barrier Lake was also only the second record. Although this bird perished a few days later, it is amazing that a bird which we are accustomed to seeing up to its knees in water could survive as long as it did. Possibly its final demise was a result of its inability to compete

with its fellow fishermen (Figure 1)! The waterfowl at Gardiner Dam provided the second records for both American Black Duck and Great White-fronted Goose. Another fishbird was found at Ft Qu'appelle - Belted Kingfisher. This bird was found along an open stretch of Qu'appelle River and had been seen regularly through early December.

The highs

Accompanying the last Christmas bird count compilation was a tabulation of frequency, abundance and high counts for all species recorded on counts from 1942 through 1986.¹ Comparing this year's data to that compilation revealed



D.F. Hooper

Figure 1.

Don Hooper

0 instances where the previous high has equalled or surpassed. Many of these were for rarer species involving only 1 or 2 individuals but the counts involving some of the more frequently recorded species were in some instances spectacular (Table 5). The almost 1000 Mallards at Gardiner Dam was seven times the previous high. As these were still field feeding I am sure there were some local duck hunters who were wishing the season was still open. The 90 Ring-necked Pheasants seen by the Haighs at Val Marie almost doubled the 30 year old record from Woodrow in 1959 and are an indicator that pheasant populations are doing well in this area. Wild Turkey populations continue to climb in the Cypress Hills as indicated by last year's record count of 17 being surpassed by 26 this year at Fort Walsh. The 8 Great Gray Owls at Quaw Rapids exceed what most people see in a lifetime and to have found this many in the small area of a count is indeed noteworthy. Finally, but certainly not the least, is the 25-fold increase in the Lapland Longspur count breaking the 17 year old record from Caron. With most of these 5000 + birds being found in one massive flock visions of spring must have prevailed instead of the imminent arrival of the coldest month of the year.

Low counts

Low counts are much more difficult to determine from just a casual review of data such as occurs during the preparation of this report. Although some excellent counts were received for Snow Buntings, overall the numbers were somewhat below the average of the past few years. The same applies to the populations of the resident woodpeckers and chickadees but probably the most notable was the winter finches - those which normally nest farther north and invade the southern areas of this province during the winter months. Only 39 counts recorded redpolls and

usually in small numbers. Similarly Pine Grosbeaks at 23 and Evening Grosbeaks at 31 localities were below the usual numbers. White-winged Crossbills averaged only 9 birds per count for the 9 areas where they were seen.

An unbelievable record

If the documentation were not so complete this record would certainly not be accepted by any sane ornithologist. With the exception of two years when she was not in the province Mary Houston has compiled this report yearly since 1956. The hours devoted to compiling the results of the reports sent in each year is phenomenal. She has watched the interest in this annual event climb continuously over the years to the point where it is the largest single nature-oriented activity in Saskatchewan.

After having waded through the material this year I feel that the rules governing our society must be changed - 33 years of devotion to a project is not enough! The naturalists of Saskatchewan owe Mary a vote of thanks for her dedication to this compilation and the interest she and Stuart have fostered in this activity.

Epilogue

Much the above discussion has centred on the unusual, be it numbers or species, and much of this from large centres or "exotic" locations and I feel that a closing word is warranted to those who conduct counts in smaller centres with only a few participants. These counts are equally important to the monitoring of our changing bird populations. Counts conducted under similar circumstances from year to year whether they record one or 100 species provide a record of change. Whether you count the birds at your feeder or around the yard or from a drive around your area, all is needed information. And, unusual species and high numbers

can occur anywhere. Just check the tables following; without Murray Doell's Willow Ptarmigan at Sandy Bay the 100 species would not have been reached. There were only 8 species at Kutawagan Lake but one of them was a Red-tailed Hawk. What about the Great Gray Owl at Bangor, the saw-whet owl at Luseland, the kestrel at Dalmeny or the flicker at Marsden?

I hope you will take the time to peruse the information present here and while doing so if you find an error or inconsistency please let me know. All the proof reading in the world does not completely eliminate errors. If you have not participated in a count before and are interested please write to me and I will place your name on the mailing list for information for next year or put you in contact with someone else in your area who might appreciate the company.

¹ RENAUD, W.E., G.J. WAPPLE and R.D. WAPPLE 1988. A summary of Saskatchewan Christmas bird counts: 1942-1986. *Blue Jay* 46(1):29-33.

Count Areas and Participants

(Names of compilers are in italics. Numbers of participants in each count are in parentheses following the names.)

1. ABERNETHY-KATEPWA. Brian & Ron Bittner, Sue Blande, Jake Cairns, Jim & Mildred Connor, Ron Hooper, Norman McKen, *Joy McKen*, Betty Reames, Lorne & Doreen Rowell, Wanda, Sheila & Shane Stueck, Marg Thompson. (17)
2. ARCHERWILL. Ed Radwanski, *Elaine Radwanski*. (2)
3. ASSINIBOIA. Ed Bearss, Gordon Brunt, Jack Burgeson, *Cec Hayward*, Dave Landa, Delmar Pettem, Wilf Prentice, Ken Schuweiler. (8)

4. BANGOR. *Jean Hilton*, *Sheila Popowich*. (2)
5. BARRIER LAKE. Alvin Hill, *Dona Hooper*, Adam Rottenberger. (3)
6. BETHUNE. Doug and Vera Laing. (2)
7. BIGGAR. Penny Dyck, Kelly Foster, *Guy Wapple*, Robert Wapple. (4)
8. BIG MUDDY LAKE. Martin Bailey, *Carol Bjorklund*, Anemone Harris, Valeriana Harris, Wayne Harris, *Karen Herriot*, Trevor Herriot, *Sheila Lamont*. (8)
9. BIRCH HILLS. *M. Mareschal*, *Don Weidl*. (2)
10. BROADVIEW. *Dave Chaskavich*, *John Donovan*, *Don Weidl*. (3)
11. BROMHEAD. Martin Bailey, *Carol Bjorklund*. (2)
12. CARRAGANA. *Stan & Marg Back*, *L. Baker*, *Donald Hooper*. (4)
13. CROOKED LAKE PROV. PARK. *Dave Chaskavich*, *Don Weidl*, *Tony Weidl*.
14. CYPRESS HILLS PROV. PARK. Ron Jensen, *Burke Korol*, *Stan Shadick*. (3)
15. DALMENY. Brian Sperling, *Loyd Sperling*. (2)
16. DILKE. *Margaret Belcher*, *Ken McArthur*. (2)
17. DOUGLAS PROV. PARK. Bob Plaster. (1)
18. DUVAL. Enid Cumming, Merv Hooper, *Kim McBride*, *Iain Richardson*, *Lloyd Saul*. (5)
19. ELROSE-KYLE. Cliff Matthews. (1)
20. ENDEAVOUR. Norman Harris. (1)
21. ESTEVAN. Tim LeBlanc, Arvid Pederson, Henry Pederson, *Guy Wapple*. (4)
22. FORT QU'APPELLE. Freda Armstrong, Nela Burns, Del Cairnes, Russ Cairnes.

- Bernard De Vries, Barbara Hooper, *Ronald Hooper*, Gary Kerr, Alice Laing, Lois Lamontagne, Jim Laroche, Ruth Lieske, Jack Lowe, Don McDougal, Jean McKenna, Jean Mlazgar, Raymond Mlazgar, Eileen Morris, Paul Paquin, Enola Rak, Betty Reames, Doreen Rowell, Lorne Rowell, Ron Simmonds, Eileen Smith, Mary Talbot, Dorothy Williams. (27)
- FORT WALSH. David Bailey, Martin Bailey, Carol Bjorklund, Dixie Black, Paul Chytyk, Anne Harris, Valeri Harris, Wayne Harris, Trevor Herriot, Ron Jensen, Burke Korol, Wilkes Parsonage, Wayne Renaud, Stan Shadick, Sandra and *Guy Wapple*. (16)
- FRENCHMAN RIVER (S. of Shaunavon). Lyndon Appleby, Kim Eskowich, *Don Weidl*. (3)
- GARDINER DAM. Martin Gerrard, Anne & Val Harris, Wayne Harris, Mary & Stuart Houston, *Guy Wapple*, Sandra Wapple. (9)
- GLAMIS-WISETON. Greville Jones. (1)
- GOOD SPIRIT LAKE. *Bill Anaka*, Joyce Anaka, Julia Wiwchar. (3)
- GOVENLOCK. David & Martin Bailey, Carol Bjorklund, Paul Chytyk, Anne & Val Harris, *Wayne Harris*, Trevor Herriot, Wayne Renaud, Guy & Sandra Wapple. (11)
- GRAND CENTRE-PIERCELAND. *J. Frank Roy*, Ryan Roy. (2)
- GRASSLANDS NATIONAL PARK. Martin Bailey, Carol Bjorklund, Anne & Val Harris, *Wayne Harris*. (5)
- GREENWATER PROV. PARK. Ron Althouse, Mac Chimko, Herman Duerkson, Don Forbes, *Donald Hooper*, Conrad Olson. (6)
- HUMBOLDT. *Ed Brockmeyer*, Mike Folk. (2)
- INDIAN HEAD. Betty & Cec Ashmore, Coral, Margo & *Vic Beaulieu*, Hazel Buglass, Kim Eskowich, Bob & Ryan Hart, Don Hayward, Gordon Howe, Helen King, Wendy Lyon, Rose & Roy McLaughlin, Bruce, Clara, Erin & Richard Neill, Dora Nickols, Doris Pats, Theresa Runge, Fred Skinner, Linda Skinner, Mary Skinner, John Stocker, Anna & Gordon Willerth, James Wolidyla. (30)
34. KAMSACK. Mabel Buceuk, Rosella Diduck, Fred Erhart, Doris Franklin, Lil Hovorka, Metro Koroluk, Cusie May, Ann Mclvor, Marge Pennell, Jess & Dallas Rezansoff, *Isabel Ritchie*, Elenor Sookocheff, Stan Stone, Gladys Wakeman, Elaine Wilson, Ann Wlasichuk. (17)
35. KELVINGTON. *Dianne Sloan*, Marguerite Sloan. (2)
36. KENASTON. Bill, Doug & Marg Beckie, *P. Lawrence Beckie*, Bea & Jack Tomyn. (6)
37. KILWINNING. Alan Daka, *Ed Driver*, Doug Martin, Jim Romo. (4)
38. KUTAWAGAN LAKE. Wayne Harris. (1)
39. LA RONGE. *Jim Paul*, Lorie Ann Paul. (2)
40. LAST MOUNTAIN LAKE WILDLIFE MANAGEMENT UNIT. Anne Harris, Val Harris, *Wayne Harris*, Sheila Lamont. (4)
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45. MARCELIN-LEASK. Alvin Lasich. (1)
46. MARSDEN. Eileen Graham, Bernie McGladdery, *Lois Wooding*. (3)
47. MAYMONT. Don Florence. (1)
48. MELFORT. *Phil Curry*, Glenn Galloway, Delores Gooliaff, Gordon Kearns, Frieda

- Markland, Sandra Moulton, Marilyn Nickeson, Mary Worley. (8)
49. MELVILLE. Ed & Charolotte Diakow, *Marion MacLean*, Hugh Wotherspoon, Robert Wotherspoon, Ross Wotherspoon. (5)
50. MOOSE JAW. Brodie & Real Aldred, Edith Bell, Doug and Helen Brunsdon, John Docherty, Alice & Carl Ellis, Doug Francis, Edward, Kenneth, Lawrence & Hartley Fredeen, Kerry & Rob Hanley, Edith & Pat Kern, Cy & *Leith Knight*, Denise Loughed, Connie & Hugh McIntyre, Richard & Wilma Pickering, Gavina Reekie, Pete Slade, Ed & Grace Walker, Harvey & Maureen Williams, Gus Zado. (31)
51. MUENSTER. Alan Smith. (1)
52. NIPAWIN. *Joyce Christiansen*, Shannon Christiansen. (2)
53. OUTLOOK. Ron Jensen, *Burke Korol*, Stan Shadick. (3)
54. PIKE LAKE. Anna Fornal, Colleen Gerwing, Mary Gilliland, *Bernie Gollop*, Mike Gollop, Ron Jensen, Menno Nickel, Frank Roy, Mary Jean Roy, Jim Wedgwood, Jim Wood. (11)
55. PREECEVILLE, Reza Bayegan, *James Purdy*. (2)
56. PRINCE ALBERT (1). Frank & Elsie Morton. (2)
57. PRINCE ALBERT (2). Myron Barton, John Burt, Pam Burt, Carman Dodge, Bebe Gilmour, Joe Graumans, Hamilton Greenwood, *Genevieve Greif*, Jim Grimsrud, Ted Snow. (10)
58. PRINCE ALBERT NATIONAL PARK. Marilyn Anions, Roger & Sherry Baird, Teresa Bartlett, Doug, Faye, Lee & Meredith Burles, Janet Campbell, Shawn Cardiff, *Susan Carr*, Nigel Caulkett, Paul & Vi Coutu, Deith Esh, Jan, Peter & Shawn Garden, Bruce Grimwood, Dave Henry, Chris Hughes, Miriam, Ted & Terri Jackson, Kelly Jennett, Scott Keesey, Dave & Josh Kennard, Peter & Darlene Krasko, Peter Lamb, Gail & Howard Lancaster, Bob Luterbach, *Brad Muir*, Lau Muir, Sharon Putz, Ron & Linds Richan, Frank Roy, Dave Russland, Eike Scheffler, Rob Spooner, Me Syroteuk, Beth Taylor, Caroline Tolius, Shawn Tompson, Bob Turnbull, Ja Unger.
59. RAYMORE. Anne & Val Harris, *Way Harris*, Sheila Lamont. (4)
60. REGINA. Phyllis Asley, Martin Baile, Keith Barr, Catherine Bazin, Laure Bazin, Margaret Belcher, *Ca Bjorklund*, Lucille Bradatsch, Fra Brazier, Bob Ewart, Bob Kreba, B Luterbach, George MacDonald, R Myers, Trevor Powell, Brian Rainey, C lian Richardson, Trevor Richardson, T Riffel, Diane Secoy, Frank Switzer. (2)
61. ROUND LAKE. *Doug Francis*, Pat Francis, Joe & Laura Grimson, John Trembl (5)
62. SANDY BAY. Murray Doell. (1)
63. SASKATOON. Norma Allen, Juha Kengo and Rika Asai, Garth, Joyce & Robert Besant, Ray Bisha, Greg Bobb, Henry Cariou, Eric Cleland, George Davis, Eric Densem, E.A. and Marga Driver, Anne Dzus, Colleen Gerwing, *Mary Gilliland*, Bernie, Madeleine & Michael Gollop, Fred Goodliffe, Jo Hanbidge, Darlene and Jim Hay, Day Mary and Stuart Houston, Ron Jensen, Robert and Suzy Kohlmeier, J. Lalibe, Jean Lindsay, Don and Joanne M Robbie, David Miller, Mu Montgomery Bruno Neufeldt, Men Nickel, Evelyn Paterson, Mary Jean R Dave Thorpe, Heather Wagg, Wedgwood, Andrew Whiting, Wood, Takeo Yokonuma.
64. SCOTT. Sandra & *Guy Wapple*. (2)
65. SHAUNAVON. James Donovan. (1)
66. SHELLBROOK-CANWOOD. A Smith. (1)
67. SKULL CREEK. *Jim Bennetto*, Bob cleston, Betty Mann, Bob Mann, I Mann, Larry Peterson, Michael Schu Moreena Schuller. (8)

Table 1. COUNT COVERAGE AND WEATHER CONDITIONS

| LOCALITY | COVERAGE AND CONDITIONS | KM BY VEHICLE | KM ON FOOT | HOURS BY VEHICLE | HOURS ON FOOT | HOURS AT FEEDERS | TEMPERATURE MAX.* | TEMPERATURE MIN.* | SNOW MAXIMUM* | SNOW MINIMUM* | SKY CONDITIONS |
|---------------------------|----------------------------|---------------|------------|------------------|---------------|------------------|-------------------|-------------------|---------------|---------------|------------------------------|
| Abernethy-Katepwa | | 139 | 2 | 4.5 | 1 | 1 | -15 | -18 | 30 | 20 | overcast light to heavy snow |
| Archerwill | | 60 | 1.5 | 3.5 | 1 | 1 | -25 | -30 | 20 | 10 | clear |
| Assiniboia | | 30 | 0 | 1 | 0 | 0 | -4 | -6 | 20 | 15 | cloudy |
| Bangor | | - | - | - | - | - | - | - | - | - | |
| Barrier Lake | | 40 | 2 | 3 | 1 | 2 | -12 | -6 | 7 | 5 | mostly cloudy |
| Bethune | | 40 | - | 5 | - | - | -8 | -14 | 2 | 0 | mostly clear |
| Biggar | | 196 | 7 | 9 | 3 | - | -21 | -29 | 15 | 3 | partly cloudy |
| Big Muddy Valley | | 340 | 5 | 14.5 | 3.5 | - | - | - | - | - | |
| Birch Hills | | 124 | 3 | 5 | 1.5 | .5 | -12 | -16 | 6 | 4 | |
| Broadview | | 129 | 3 | 4 | 2 | - | -21 | -24 | 10 | 5 | mostly clear |
| Bromhead | | 110 | 1 | 4 | 1 | - | -17 | -20 | 20 | 10 | clear |
| Carrangana | | 70 | 8 | 2.5 | 3 | 8 | -2 | -32 | 15 | 5 | mostly cloudy, light snow |
| Crooked Lake P.P. | | 103 | 4 | 4 | 2 | 1 | -25 | -30 | 12 | 8 | clear |
| Cypress Hills P.P. | | 50 | 3.5 | 3 | 1 | - | +7 | - | 10 | 4 | overcast |
| Dalmeny | | - | 14 | - | 6.5 | - | -10 | -18 | 20 | 2 | partly cloudy, moderate snow |
| Dilke | | 140 | 4 | 5 | 2 | - | -12 | -17 | 15 | 1 | overcast |
| Douglas P.P. | | 15 | 5 | 2 | 2 | - | -20 | -30 | 20 | 10 | mostly clear |
| Duval | | 205 | 8 | 7.5 | 3 | .5 | -2 | -7 | 13 | 0 | cloudy |
| Elrose - Kyle | | 40 | - | 5 | - | - | -20 | -25 | 14 | 12 | clear |
| Endeavour | | 5 | 9 | 3 | 3 | - | -33 | - | 1 | 13 | clear |
| Estevan | | 128 | 4 | 7 | 2 | - | -10 | -16 | 15 | 3 | cloudy |
| Fort Qu'Appelle | | 250 | 4 | 10 | 3 | 30 | -2 | -6 | 2 | 1 | mostly cloudy, light snow |
| Fort Walsh | | 190 | 50 | 25 | 29.5 | 2 | +3 | -2 | 18 | 4 | partly cloudy |
| Frenchman R. | | 570 | - | 7 | - | - | 0 | -3 | 2 | 3 | overcast |
| Gardiner Dam | | 248 | 15 | 19.5 | 6 | - | -1 | -4 | 15 | 0 | mostly cloudy |
| Glamis-Wiseton | | 55 | 5 | 2 | 2 | - | -20 | -30 | 25 | 0 | clear |
| Good Spirit Lake | | 94 | 8 | 5 | 4 | 1 | -9 | -20 | 5 | - | clear |
| Govenlock | | - | - | - | - | - | - | - | - | - | |
| Grand Centre | | 112 | 3 | 4 | 1.5 | .5 | -21 | -27 | 14 | 3 | mostly clear |
| Grassland Nat. Park | | 160 | 10 | 14.5 | 3.5 | - | +1 | -4 | 1 | 0 | mostly clear |
| Greenwater P.P. | | 60 | 1 | 3 | 1 | 3 | -12 | -20 | 9 | 6 | clear |
| Humboldt | | 58 | 10 | 3 | 2 | 3 | -14 | -24 | 8 | 6 | partly cloudy |
| Indian Head | | 246 | 11 | 16 | 2.5 | 6 | -2 | -4 | 16 | 10 | mostly cloudy |
| Jamsack | | - | - | - | - | - | - | - | 14 | 12 | |
| Kelvington | | - | - | - | - | 8 | - | -18 | 10 | 8 | |
| Kenaston | | 50 | - | 4 | - | - | 0 | -5 | 6 | 4 | mostly clear |
| Kilwinning | | 87 | 2 | 5 | 1 | - | -20 | -22 | 30 | 10 | overcast, light snow |
| Kutawagan Lake | | 125 | 2 | 5 | 1 | - | -10 | -18 | 10 | 0 | Clear |
| La Ronge | | 141 | 3 | 4 | 1 | 2 | -21 | -36 | 40 | 25 | partly cloudy |
| Lost Mountain Lake W.M.U. | | 220 | 5 | 6 | 4 | - | -12 | -20 | 8 | 4 | clear |
| Leader | | 18 | 6 | 1 | 3 | 1 | -25 | -32 | 30 | 16 | mostly clear |
| Levelong | | - | 12 | - | 2 | 6 | -25 | -35 | - | - | mostly clear |
| Lion Lake | | - | - | - | - | 6 | -30 | -35 | 3 | 2 | mostly clear |
| Liseland | | 69 | 18 | 2 | 9 | 1 | -6 | -10 | 50 | 3 | mostly cloudy, light snow |
| Marcelin | | 30 | 1 | 2.5 | .5 | - | -14 | - | 10 | - | mostly clear |
| Marsden | | 164 | 3 | 7 | 1 | 2 | -24 | -27 | 8 | 5 | clear |
| Maymont | | 70 | - | 3 | - | - | - | - | - | - | |
| McElfort | | 30 | 2 | 6 | 2 | 5 | -23 | -29 | - | 9 | clear |
| McElville | | 50 | 4 | 5 | 2 | 2 | -15 | -28 | 6 | 4 | partly cloudy, light fog |
| Moose Jaw | | 162 | 30.5 | 9 | 11 | 3 | -15 | -16 | 15 | 5 | mostly clear |
| Muenster | | 165 | 2 | 5 | 1 | - | -2 | -10 | 5 | 0 | partly cloudy |
| Mawwin | | - | - | - | - | 6 | - | -24 | - | 10 | overcast |
| Mutlook | | - | 2 | - | .5 | - | -1 | -12 | 2 | 0 | |
| Neke Lake | | 136 | 79 | 15 | 21 | - | -19 | -20 | 10 | 5 | overcast |
| Neeceville | | 10 | 2.5 | .5 | 2 | .5 | -25 | -27 | 15 | 8 | mostly clear |
| Nance Albert (1) | | - | - | - | - | - | - | - | - | - | |
| Nance Albert (2) | | 146 | 8.8 | 9.8 | 4.2 | .5 | 0 | -5 | 3 | 0 | |
| Nance Albert N.P. | | 100 | 68.5 | 11.5 | 36.5 | 1 | 0 | -7 | 6 | 4 | overcast light snow |
| Nymore | | 220 | 8 | 8 | 5 | 1 | -19 | -32 | 10 | 6 | clear |
| Nygina | | 707 | 44.5 | 33 | 19 | - | -11 | -18 | 13 | 10 | overcast light snow |
| Nund Lake | | 118 | .5 | 6 | .5 | 6 | -3 | -15 | 30 | 15 | mostly clear |
| Nundy Bay | | - | - | - | - | - | - | - | - | - | |
| Nuskatoon | | 842 | 105 | 63 | 63 | 123 | -22 | -27 | 15 | 12 | partly cloudy |
| Nott | | 172 | 3 | 7 | 1.5 | - | -19 | -15 | 15 | 5 | partly cloudy, light snow |
| Nunavon | | 30 | 1 | 2 | 1 | - | +5 | 0 | 8 | 5 | partly cloudy |
| Nellbrook-Canwood | | 155 | 3 | 8.3 | 2 | - | -20 | -25 | 5 | 0 | partly cloudy |
| Nell Creek | | 20 | 4 | 3 | 3 | 1 | - | -18 | 20 | 16 | clear |
| Nowden | | 76 | 2.5 | 4.5 | 1 | 1.5 | -25 | -29 | 9 | 1 | partly cloudy |
| Nymme | | 90 | 5 | 3 | 2 | 2 | -15 | -17 | 8 | 5 | mostly cloudy |
| Nunny Hill | | 99 | 2 | 5.5 | .8 | - | -23 | -25 | 40 | 20 | |

Table 1. COUNT COVERAGE AND WEATHER CONDITIONS (continued)

| LOCALITY | COVERAGE AND CONDITIONS | KM BY VEHICLE | KM ON FOOT | HOURS BY VEHICLE | HOURS ON FOOT | HOURS AT FEEDERS | TEMPERATURE MAX.* | TEMPERATURE MIN.* | SNOW MAXIMUM* | SNOW MINIMUM* | SKY CONDITIONS |
|-----------------|----------------------------|---------------|------------|------------------|---------------|------------------|-------------------|-------------------|---------------|---------------|----------------|
| Spring Valley | | 60 | 1 | 3.5 | 1 | - | -9 | -16 | 70 | 22 | mostly cloudy |
| Spruce Home | | - | - | 1.5 | .5 | 1 | 0 | -5 | 4 | 0 | |
| Squaw Rapids | | 47 | 76 | 12 | 13 | - | -11 | -17 | 18 | 18 | mostly clear |
| St. Walburg | | 150 | 3.5 | 4 | 1.5 | - | -30 | -35 | 10 | 6 | clear |
| Tisdale | | 30 | - | 2.5 | - | - | -20 | -27 | 10 | 6 | mostly clear |
| Tompkins | | 25 | - | 3 | - | - | - | -6 | 12 | 8 | |
| Turtle Lake | | 60 | 2 | 3 | 2 | 8 | -20 | -25 | 8 | 6 | mostly clear |
| Val Marie | | 64 | 3 | 5.5 | 2 | - | -1 | -5 | 10 | | mostly cloudy |
| Warman | | 50 | 2 | 2.5 | .5 | - | -25 | -28 | 10 | 0 | mostly clear |
| Weyburn | | 301 | 18.5 | 12 | 4 | 1 | -6 | -10 | 12 | 10 | mostly clear |
| White Bear Lake | | 154 | 10 | 3 | 4 | | | -5 | 12 | 4 | mostly cloudy |
| Whitebeech | | 4 | 2 | .5 | .5 | 5 | -22 | -23 | 30 | 25 | mostly clear |
| Wolseley | | 79 | .5 | 2 | - | - | -20 | -24 | - | 12 | mostly clear |
| Yorkton | | 80 | 8 | 12 | 3 | .5 | -7 | -17 | - | 7 | overcast |

* Temperature given in degrees Celsius; snow depth in centimeters.

68. SNOWDEN. Elodie Hagel, Irene Hagel, Karen Hagel, Deni Messer, Stacii Messer, Iain Richardson, *Lloyd Saul*. (7)
69. SOMME. Edwin Billeter, David Black, Florence Chase, Betty Edworthy, *Donald Hooper*, Margaret Hooper, Alex Kirk. (7)
70. SPINNEY HILL. *Ed Driver*, Paul Stevens. (2)
71. SPRING VALLEY. Allan Bogdan, *Flossie Bogdan*, Larry Bogdan, Nick Bogdan, Dean Goian. (5)
72. SPRUCE HOME. *Tom Dice*, Sharon Dice. (2)
73. SQUAW RAPIDS. *Wayne Harris*, Sheila Lamont, Wayne Renaud, Guy Wapple, Sandra Wapple. (5)
74. ST. WALBURG. Nigel Caulkett. (1)
75. TISDALE. Joyce Mohr. (1)
76. TOMPKINS. Raymond Olson. (1)
77. TURTLE LAKE. *Muriel Carlson*, P. Chartrand, S. Pavka, Dorothy Texton. (4)
78. VAL MARIE. Jerry Haigh, *Chas Haigh*. (2)
79. WARMAN. Murray Doell. (1)
80. WEYBURN. B. Aldrich, E. Baird Belanger, Leo Belanger, *Ray Belan*, Stan Belanger, G. Bobbitt, N. Flaten Gutfriend, G. Kurtz, B. Layh, P. Layh Marcotte, R. Neville, N. Postey, R. R ball, L. Sakatch, S. Stairmand, G. Vi J. Weisgerber. (20)
81. WHITE BEAR LAKE. Ray Belanger, *C Bobbitt*, Dick Gutfriend, Stewart S mand, Joe Weisgerber, Rose Weisger (6)
82. WHITEBEECH. Ida & *Lin Wotherspoon*. (2)
83. WOLSELEY. *Dale Chay*, Don Hayw (2)
84. YORKTON. Bill & Joyce Anaka, Sa Yvette Crane, Arthur Griffith, Elinor I taas, *Warren Hjertaas*, Lorne & Ma Lepp, Harold & Wilma Wilkinson, Wiwchar. (12)

LOCATION OF COUNTS

| | | |
|-------------------------------|-----------------------------|--------------------------------|
| ABERNETHY-KATEPWA | 29. GRAND CENTRE-PIERCELAND | 57. PRINCE ALBERT (2) |
| ARCHERWILL | 30. GRASSLAND NATIONAL PK. | 58. PRINCE ALBERT NATIONAL PK. |
| ASSINIBOIA | 31. GREENWATER PROV. PARK | 59. RAYMORE |
| BANGOR | 32. HUMBOLDT | 60. REGINA |
| BARRIER LAKE | 33. INDIAN HEAD | 61. ROUND LAKE |
| BETHUNE | 34. KAMSACK | 62. SANDY BAY |
| BIGGAR | 35. KELVINGTON | 63. SASKATOON |
| BIG MUDDY LAKE | 36. KENASTON | 64. SCOTT |
| BIRCH HILLS | 37. KILWINNING | 65. SHAUNAVON |
| BROADVIEW | 38. KUTAWAGAN LAKE | 66. SHELLBROOK-CANWOOD |
| BROMHEAD | 39. LA RONGE | 67. SKULL CREEK |
| CARRAGANA | 40. LAST MOUNTAIN L. W.M.U. | 68. SNOWDEN |
| CROOKED LAKE PROV. PARK | 41. LEADER | 69. SOMME |
| CYPRESS HILLS PROV. PARK | 42. LIVELONG | 70. SPINNEY HILL |
| DALMENY | 43. LOON LAKE | 71. SPRING VALLEY |
| DILKE | 44. LUSELAND | 72. SPRUCE HOME |
| DOUGLAS PROV. PARK | 45. MARCELIN-LEASK | 73. SQUAW RAPIDS |
| DUVAL | 46. MARSDEN | 74. ST. WALBURG |
| ELROSE-KYLE | 47. MAYMONT | 75. TISDALE |
| ENDEAVOUR | 48. MELFORT | 76. TOMPKINS |
| ESTEVAN | 49. MELVILLE | 77. TURTLE LAKE |
| FORT QU'APPELLE | 50. MOOSE JAW | 78. VAL MARIE |
| FORT WALSH | 51. MUENSTER | 79. WARMAN |
| FRENCHMAN R. (s of Shaunavon) | 52. NIPAWIN | 80. WEYBURN |
| GARDINER DAM | 53. OUTLOOK | 81. WHITE BEAR LAKE |
| GLAMIS-WISETON | 54. PIKE LAKE | 82. WHITEBEECH |
| GOOD SPIRIT LAKE | 55. PREECEVILLE | 83. WOLSELEY |
| GOVENLOCK | 56. PRINCE ALBERT (1) | 84. YORKTON |

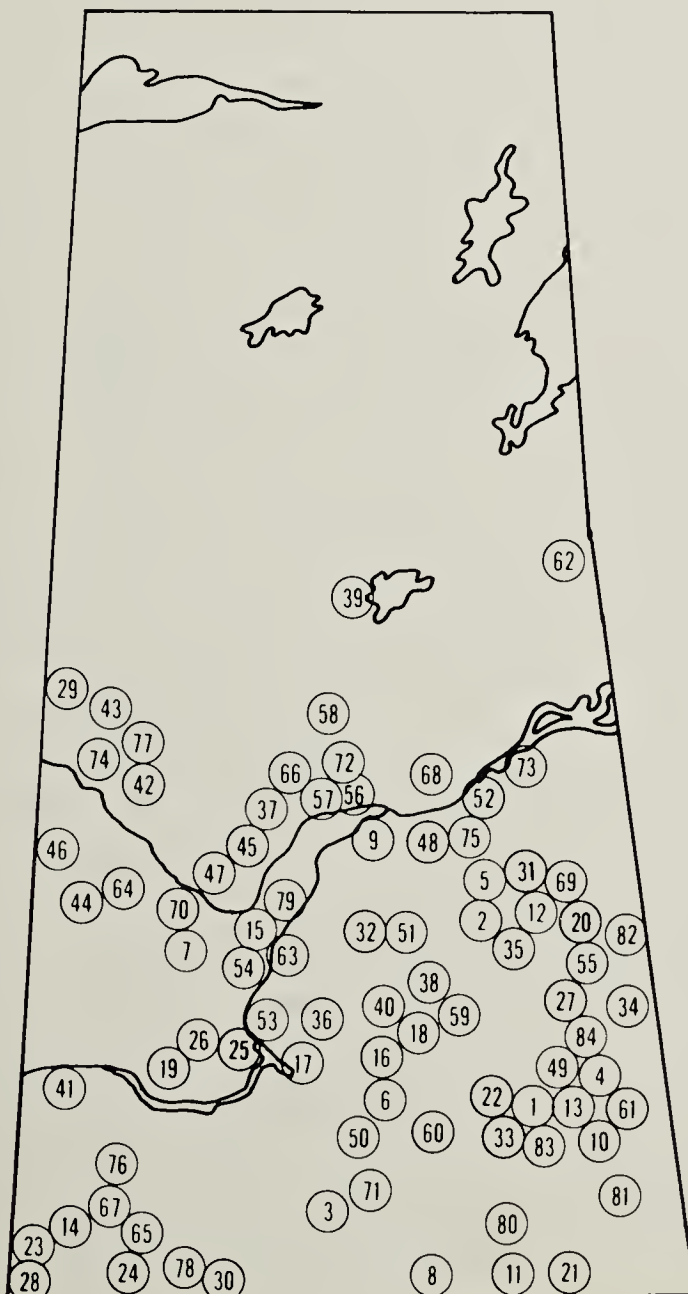


Table 2-1. SPECIES RECORDED FROM MORE THAN FIVE LOCALITIES
 (+ = high count for a species seen during count period but not on count day)

| SPECIES | LOCALITY & DATE | 1. ABERNETHY 3 Jan. 1989 | 2. ARCHERWILL 1 Jan. 1989 | 3. ASSINIBOIA 3 Jan. 1989 | 4. BANGOR 26 Dec. 1988 | 5. BARRIER LAKE 20 Dec. 1988 | 6. BETHUNE 19 Dec. 1988 | 7. BIGGAR 28 Dec. 1988 | 8. BIG MUDDY LAKE 29 Dec. 1988 | 9. BIRCH HILLS 23 Dec. 1988 | 10. BROADVIEW |
|--------------------------|-----------------|-----------------------------|------------------------------|------------------------------|---------------------------|---------------------------------|----------------------------|---------------------------|-----------------------------------|--------------------------------|---------------|
| CANADA GOOSE | | + 125 | | | | | | | | | |
| MALLARD | | 46 | | | | | | | | | |
| COMMON GOLDENEYE | | | | | | | | | | | |
| BALD EAGLE | | + 1 | | | | | | | | | |
| NORTHERN GOSHAWK | | | | | | + 2 | | 1 | | | |
| GOLDEN EAGLE | | | | 2 | | | 1 | 1 | 6 | | |
| MERLIN | | | | | | | | + 1 | | | |
| PRAIRIE FALCON | | | | 1 | | | | | | | |
| GRAY PARTRIDGE | | 14 | | 112 | 10 | | 7 | 29 | 9 | | |
| RING-NECKED PHEASANT | | | | 4 | | | | | 24 | | |
| RUFFED GROUSE | | 1 | 1 | | 2 | + 2 | | | | 11 | |
| SHARP-TAILED GROUSE | | 4 | | 31 | 29 | + 20 | | 17 | | 8 | |
| ROCK DOVE | | 12 | | | 8 | | 8 | 80 | 2 | 70 | |
| GREAT HORNED OWL | | + 1 | + 1 | 1 | 1 | 1 | | 1 | 2 | 1 | |
| SNOWY OWL | | 1 | | 2 | | 1 | 1 | + 1 | | | |
| SHORT-EARED OWL | | | | | | | | 3 | 1 | | |
| DOWNY WOODPECKER | | 7 | 3 | | 2 | 2 | | 2 | | 2 | |
| HAIRY WOODPECKER | | 8 | 2 | 1 | 2 | 3 | | 3 | | 4 | |
| PILEATED WOODPECKER | | | | | | | | | | | |
| HORNED LARK | | | | | | | | 262 | 2124 | | |
| GRAY JAY | | | | | | 3 | | | | | |
| BLUE JAY | | 2 | 5 | | | 7 | | | | 1 | |
| BLACK-BILLED MAGPIE | | 25 | 6 | 19 | 9 | 9 | 7 | 46 | 30 | 43 | |
| COMMON RAVEN | | | 16 | | 2 | 23 | | | | 14 | |
| BLACK-CAPPED CHICKADEE | | 32 | 12 | | 20 | 12 | | 24 | | 27 | |
| BOREAL CHICKADEE | | | 6 | | | 2 | | | | | |
| RED-BREASTED NUTHATCH | | | | | | | | | | | |
| WHITE-BREASTED NUTHATCH | | 6 | + 1 | | | + 1 | | | | | |
| GOLDEN-CROWNED KINGLET | | | | | | | | | | | |
| AMERICAN ROBIN | | | | | | | | | | | |
| BOHEMIAN WAXWING | | + 35 | | | | | | 4 | | 211 | |
| CEDAR WAXWING | | | + 12 | | | | | | | | |
| NORTHERN SHRIKE | | | | | | + 1 | | 1 | 1 | | |
| EUROPEAN STARLING | | | | | | | | 6 | 1 | 6 | |
| DARK-EYED JUNCO | | | | | | 6 | | | | | |
| SNOW BUNTING | | 290 | 16 | 230 | 60 | | 26 | 45 | 318 | | |
| RUSTY BLACKBIRD | | | | | | | | | | | |
| PINE GROSBEAK | | + 20 | | | | 20 | | | | 12 | |
| WHITE-WINGED CROSSBILL | | | | | | | | | | | |
| COMMON REDPOLL | | 15 | + 4 | | 8 | 40 | | 220 | | 23 | |
| HOARY REDPOLL | | | | | | + 2 | | 4 | | | |
| PINE SISKIN | | | | | | | | | | | |
| EVENING GROSBEAK | | | 50 | | | 25 | | | | 57 | |
| HOUSE SPARROW | | 117 | 4 | 205 | 40 | 4 | 150 | 437 | 388 | 87 | |
| NO. INDIV. TABLES 3&4 | | 12 | | 1 | 1 | 2 | | 1 | 5273 | 1 | |
| NO. SPECIES COUNT DAY | | 16 | 12 | 11 | 14 | 17 | 7 | 21 | 14 | 17 | |
| NO. SPECIES COUNT PERIOD | | 21 | 15 | 11 | 14 | 23 | 7 | 2 | 14 | 17 | |
| NO. SPECIES TABLE 3&4 | | 1 | | 1 | 1 | 2 | | 1 | 2 | 1 | |
| NO. INDIV COUNT DAY | | 588 | 126 | 608 | 194 | 188 | 200 | 1189 | 8179 | 578 | |

ble 2-2. SPECIES RECORDED FROM MORE THAN FIVE LOCALITIES
 = high count for a species seen during count period but not on count day)

| 28 Dec. 1988 | 12. CARRAGANA 03 Jan. 1989 | 13. CROOKED LAKE P.P. 28 Dec. 1988 | 14. CYPRESS HILLS P.P. 18 Dec. 1988 | 15. DALMENY 02 Jan. 1989 | 16. Dilke 30 Dec. 1988 | 17. DOUGLAS P. PARK 26 Dec. 1988 | 18. DUVAL 27 Dec. 1988 | 19. ELROSE-KYLE 24 Dec. 1988 | 20. ENDEAVOUR 25 Dec. 1988 | LOCALITY & DATE SPECIES |
|--------------|-------------------------------|---------------------------------------|--|-----------------------------|---------------------------|-------------------------------------|---------------------------|---------------------------------|-------------------------------|----------------------------|
| | | | | + 2 | | 100 | | | | CANADA GOOSE |
| | | | | | | 6 | | | | MALLARD |
| | | | | | | 6 | | | | COMMON GOLDENEYE |
| | | | | | | 4 | | | | BALD EAGLE |
| | | | | | | | | | | NORTHERN GOSHAWK |
| 1 | | | | | + 1 | | | | | GOLDEN EAGLE |
| | | | | | | | | | | MERLIN |
| | 1 | | | | | | | | | PRAIRIE FALCON |
| 05 | | 10 | | | + 5 | 12 | 9 | | | GRAY PARTRIDGE |
| 7 | | | | | | | | | | RING-NECKED PHEASANT |
| | 7 | 4 | | 10 | | | 1 | | 2 | RUFFED GROUSE |
| | 1 | 17 | | 4 | 2 | 8 | 23 | | 9 | SHARP-TAILED GROUSE |
| | 10 | | 6 | + 13 | 1 | 8 | 17 | | | ROCK DOVE |
| 6 | 2 | 1 | 1 | | + 1 | 1 | 1 | | + 1 | GREAT HORNED OWL |
| 7 | | | | | + 1 | 2 | | 2 | + 1 | SNOWY OWL |
| | | 1 | | | | + 1 | | | | SHORT-EARED OWL |
| 2 | 2 | 7 | | | 1 | | | | 1 | DOWNY WOODPECKER |
| | 6 | 6 | | 1 | + 1 | 2 | + 1 | | 2 | HAIRY WOODPECKER |
| | 1 | | | | | | | | | PILEATED WOODPECKER |
| 0 | | 6 | | | 202 | | 234 | 14 | | HORNED LARK |
| | 5 | | | | | | | | 2 | GRAY JAY |
| | 9 | 9 | | | 3 | | + 1 | | 1 | BLUE JAY |
| 2 | 16 | 23 | 21 | 10 | 20 | 28 | 29 | 2 | 1 | BLACK-BILLED MAGPIE |
| | 27 | | | | | | | | + 17 | COMMON RAVEN |
| 4 | 12 | 47 | 8 | 11 | | 9 | 15 | | 3 | BLACK-CAPPED CHICKADEE |
| | 1 | | | | | | | | | BOREAL CHICKADEE |
| | | | 2 | | | | | | | RED-BREASTED NUTHATCH |
| | 2 | 4 | | | | | | | | WHITE-BREASTED NUTHATCH |
| | | | | | | | | | | GOLDEN-CROWNED KINGLET |
| | | | | | | + 1 | | | | AMERICAN ROBIN |
| | 6 | 206 | | | | | | | | BOHEMIAN WAXWING |
| | | | | | | 60 | | | + 6 | CEDAR WAXWING |
| | | 3 | | | | | | | | NORTHERN SHRIKE |
| | | | | | + 4 | 12 | | | | EUROPEAN STARLING |
| | | | | | | | | | | DARK-EYED JUNCO |
| 5 | | | | 600 | 200 | 23 | 338 | | 25 | SNOW BUNTING |
| | | | | | | | | | | RUSTY BLACKBIRD |
| | 15 | | | | | | | | 19 | PINE GROSBEAK |
| | | | | | | | | | | WHITE-WINGED CROSSBILL |
| | 40 | 1 | | | | | | | 40 | COMMON REDPOLL |
| | | | | | | | | | | HOARY REDPOLL |
| | | | | | | | | | | PINE SISKIN |
| | 30 | 3 | | | | 1 | | | | EVENING GROSBEAK |
| 7 | | 35 | | 35 | 167 | 30 | 222 | | 27 | HOUSE SPARROW |
| | 1 | | 18 | 1 | | 21 | | | | NO. INDIV. TABLES 3&4 |
| | 21 | 17 | 7 | 8 | 8 | 21 | 10 | 3 | 12 | NO. SPECIES COUNT DAY |
| | 21 | 17 | 7 | 10 | 14 | 23 | 12 | 3 | 16 | NO. SPECIES COUNT PERIOD |
| | 1 | | 2 | 1 | | 4 | | | | NO. SPECIES TABLE 3&4 |
| 0 | 194 | 383 | 56 | 662 | 596 | 333 | 889 | 18 | 132 | NO. INDIV COUNT DAY |

Table 2-3. SPECIES RECORDED FROM MORE THAN FIVE LOCALITIES
 (+ = high count for a species seen during count period but not on count day)

| SPECIES | LOCALITY & DATE | 21. ESTEVAN 24 Dec. 1988 | 22. FORT QU'APPELLE 19 Dec. 1988 | 23. FORT WALSH 17 Dec. 1988 | 24. FRENCHMAN RIVER 18 Dec. 1988 | 25. GARDINER DAM 19 Dec. 1988 | 26. GLAMIS-WISETON 01 Jan. 1989 | 27. GOOD SPIRIT LAKE 21 Dec. 1988 | 28. GOVENLOCK 18 Dec. 1988 | 29. GRAND CENTRE 26 Dec. 1988 | 30. GRACELAND N.D. |
|--------------------------|-----------------|-----------------------------|-------------------------------------|--------------------------------|-------------------------------------|----------------------------------|------------------------------------|--------------------------------------|-------------------------------|----------------------------------|--------------------|
| CANADA GOOSE | | 457 | 30 | | | 830 | | | | | |
| MALLARD | | 12 | 27 | 9 | | 8956 | | | | | |
| COMMON GOLDENEYE | | 2 | 10 | | | 216 | | | | + 75 | |
| BALD EAGLE | | | + 1 | + 1 | + 1 | 17 | | | | | |
| NORTHERN GOSHAWK | | | | 1 | | | | 1 | | | |
| GOLDEN EAGLE | | | | 6 | 3 | 7 | | | 9 | | |
| MERLIN | | | 1 | 3 | | 1 | | | + 1 | | |
| PRAIRIE FALCON | | + 1 | | + 1 | + 1 | | | | 2 | | |
| GRAY PARTRIDGE | | 82 | 6 | 24 | 27 | 32 | 12 | | 54 | | |
| RING-NECKED PHEASANT | | | 1 | 7 | | 1 | | | 20 | | |
| RUFFED GROUSE | | | 1 | 1 | | | | + 2 | | 1 | |
| SHARP-TAILED GROUSE | | | + 6 | 21 | 1 | 22 | 2 | 39 | 16 | | |
| ROCK DOVE | | 39 | 18 | 5 | | 79 | 3 | 3 | 1 | 13 | |
| GREAT HORNED OWL | | 5 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | | |
| SNOWY OWL | | 1 | 1 | | | 3 | 2 | 1 | 5 | | |
| SHORT-EARED OWL | | | | | | | | | | | |
| DOWNY WOODPECKER | | | 10 | 5 | | 1 | | 8 | | 2 | |
| HAIRY WOODPECKER | | 2 | 3 | 5 | | | | 10 | | 5 | |
| PILEATED WOODPECKER | | | | | | | | | | | |
| HORNED LARK | | 21 | 15 | 101 | 130 | 17 | 45 | | 248 | | |
| GRAY JAY | | | | | | | | | | 1 | |
| BLUE JAY | | | 8 | | | | | + 1 | | 7 | |
| BLACK-BILLED MAGPIE | | 5 | 41 | 204 | 24 | 90 | 1 | 39 | 2 | 11 | |
| COMMON RAVEN | | | | | | | | 23 | | 46 | |
| BLACK-CAPPED CHICKADEE | | 18 | 46 | 114 | | 34 | | 42 | | 29 | |
| BOREAL CHICKADEE | | | | | | | | | | 2 | |
| RED-BREASTED NUTHATCH | | | 2 | 18 | | | | | | | |
| WHITE-BREASTED NUTHATCH | | 2 | 7 | | | | | 2 | | | |
| GOLDEN-CROWNED KINGLET | | 2 | 2 | 19 | | | | | | | |
| AMERICAN ROBIN | | | | | | 1 | | | | | |
| BOHEMIAN WAXWING | | | + 30 | 17 | | | | + 12 | | | |
| CEDAR WAXWING | | | | | | | | | | | |
| NORTHERN SHRIKE | | | 1 | 3 | | 4 | | 1 | | | |
| EUROPEAN STARLING | | 51 | | | | 56 | | 16 | 1 | 28 | |
| DARK-EYED JUNCO | | | | 5 | | | | | 1 | | |
| SNOW BUNTING | | 14 | 30 | 6 | 70 | 65 | 75 | 2 | 3970 | 75 | |
| RUSTY BLACKBIRD | | 1 | 3 | 16 | | | | 4 | 1 | | |
| PINE GROSBEAK | | | + 12 | | | | | 1 | | 8 | |
| WHITE-WINGED CROSSBILL | | | | 2 | | | | | | 23 | |
| COMMON REDPOLL | | | 2 | 30 | | 20 | | 27 | | 58 | |
| HOARY REDPOLL | | | | | | | | | | | |
| PINE SISKIN | | | | | | | | | | | |
| EVENING GROSBEAK | | | | | | | | + 1 | | 75 | |
| HOUSE SPARROW | | 80 | 377 | 238 | 35 | 489 | 15 | 239 | 225 | 22 | |
| NO. INDIV. TABLES 3&4 | | 1 | 15 | 197 | | 218 | | | 19 | | |
| NO. SPECIES COUNT DAY | | 18 | 29 | 34 | 8 | 43 | 9 | 18 | 19 | 17 | |
| NO. SPECIES COUNT PERIOD | | 19 | 35 | 37 | 10 | 44 | 9 | 22 | 21 | 18 | |
| NO. SPECIES TABLE 3&4 | | 1 | 7 | 10 | | 22 | | | 6 | | |
| NO. INDIV COUNT DAY | | 795 | 657 | 1058 | 2911 | 1161 | 156 | 475 | 4577 | 481 | 1 |

Table 2-4. SPECIES RECORDED FROM MORE THAN FIVE LOCALITIES
+ = high count for a species seen during count period but not on count day)

| 31. GREENWATER P.P. 21 Dec. 1988 | 32. HUMBOLDT 26 Dec. 1988 | 33. INDIAN HEAD 30 Dec. 1988 | 34. KAMSACK 04 Jan. 1989 | 35. KELVINGTON 24 Dec. 1988 | 36. KENASTON 26 Dec. 1988 | 37. KILWINNING 30 Dec. 1988 | 38. KUTAWAGAN LAKE 03 Jan. 1989 | 39. LA RONGE 27 Dec. 1988 | 40. LAST MOUNTAIN L. 26 Dec. 1988 | LOCALITY & DATE SPECIES |
|-------------------------------------|------------------------------|---------------------------------|-----------------------------|--------------------------------|------------------------------|--------------------------------|------------------------------------|------------------------------|--------------------------------------|----------------------------|
| | | 10 | | | | | | | | CANADA GOOSE |
| | | 47 | | | | | | | | MALLARD |
| | | | | | | | | | | COMMON GOLDENEYE |
| +1 | | 1 | | | | | | | | BALD EAGLE |
| +1 | | | | | | 1 | | | | NORTHERN GOSHAWK |
| | | | | | | | | | 1 | GOLDEN EAGLE |
| | +1 | 1 | | | | | | | | MERLIN |
| | | | | | | | | | | PRAIRIE FALCON |
| | 16 | 52 | 10 | | +28 | | 34 | | 36 | GRAY PARTRIDGE |
| | | | | | | | | | | RING-NECKED PHEASANT |
| +1 | 2 | 6 | 10 | 3 | | 4 | | | | RUFFED GROUSE |
| 15 | 38 | | | +9 | 2 | | 12 | | 8 | SHARP-TAILED GROUSE |
| 6 | 190 | | | | 28 | 8 | 14 | | 196 | ROCK DOVE |
| 2 | +2 | 2 | +1 | | 1 | | | | | GREAT HORNED OWL |
| | +1 | 2 | | | | | | | | SNOWY OWL |
| | | | | | +1 | | | | 3 | SHORT-EARED OWL |
| 3 | 10 | 4 | 4 | 2 | +1 | 2 | | 1 | 2 | DOWNY WOODPECKER |
| 7 | +2 | 6 | 6 | 2 | | 4 | | 2 | | HAIRY WOODPECKER |
| 2 | | | 1 | | | | | | | PILEATED WOODPECKER |
| | 6 | 2 | | | 377 | 2 | 7 | | 69 | HORNED LARK |
| 3 | | | 2 | | | | | 3 | | GRAY JAY |
| 6 | +4 | 8 | 20 | 2 | +2 | 2 | | 1 | | BLUE JAY |
| 28 | 14 | 39 | 6 | 1 | 15 | 19 | 29 | | 38 | BLACK-BILLED MAGPIE |
| 24 | | | 7 | 2 | | 3 | | 106 | | COMMON RAVEN |
| 38 | 38 | 87 | 15 | 8 | +2 | 16 | | 5 | | BLACK-CAPPED CHICKADEE |
| 2 | | | 20 | | | | | 1 | | BOREAL CHICKADEE |
| | | 5 | | | | | | | | RED-BREASTED NUTHATCH |
| 10 | | 6 | 4 | 1 | | | | | | WHITE-BREASTED NUTHATCH |
| | 3 | | | | | | | | | GOLDEN-CROWNED KINGLET |
| | | | 1 | | | | | | | AMERICAN ROBIN |
| 25 | | | 40 | | | | | | | BOHEMIAN WAXWING |
| | | | 120 | | | | | | | CEDAR WAXWING |
| | | | | | | 1 | | | | NORTHERN SHRIKE |
| | +5 | 8 | | | | | | | 19 | EUROPEAN STARLING |
| | | | 6 | | | | | | | DARK-EYED JUNCO |
| 15 | 44 | 95 | 50 | 500 | 573 | 352 | 46 | | 1542 | SNOW BUNTING |
| | | | | | | | | | | RUSTY BLACKBIRD |
| +6 | | | 40 | 12 | | 38 | | 29 | | PINE GROSBEAK |
| 3 | | | | | | 1 | | | | WHITE-WINGED CROSSBILL |
| 20 | 12 | | 40 | | +55 | 160 | | 14 | | COMMON REDPOLL |
| | | | 8 | | | | | 5 | | HOARY REDPOLL |
| | | | 8 | | | | | | | PINE SISKIN |
| 17 | | | 400 | 2 | | 54 | | 67 | | EVENING GROSBEAK |
| 17 | 146 | 142 | 100 | 6 | 35 | 38 | 127 | | 510 | HOUSE SPARROW |
| 1 | 1 | 4 | 3 | | | | 1 | | | NO. INDIV. TABLES 3&4 |
| 18 | 12 | 22 | 25 | 12 | 8 | 17 | 8 | 11 | 11 | NO. SPECIES COUNT DAY |
| 24 | 19 | 22 | 26 | 13 | 13 | 17 | 8 | 11 | 11 | NO. SPECIES COUNT PERIOD |
| 1 | 1 | 3 | 2 | | | | 1 | | | NO. SPECIES TABLE 3&4 |
| 09 | 519 | 528 | 921 | 541 | 1042 | 705 | 270 | 234 | 2424 | NO. INDIV COUNT DAY |

Table 2-5. SPECIES RECORDED FROM MORE THAN FIVE LOCALITIES
 (+ = high count for a species seen during count period but not on count day)

| SPECIES | LOCALITY & DATE | 41. LEADER 26 Dec. 1988 | 42. LIVELONG 24 Dec. 1988 | 43. LOON LAKE 26 Dec. 1988 | 44. LUSELAND 02 Jan. 1989 | 45. MARCELIN-LEASK 24 Dec. 1988 | 46. MARSDEN 26 Dec. 1988 | 47. MAYMONT 21 Dec. 1988 | 48. MELFORT 27 Dec. 1988 | 49. MELVILLE 25 Dec. 1988 | 50. MOOSE JAW |
|--------------------------|-----------------|----------------------------|------------------------------|-------------------------------|------------------------------|------------------------------------|-----------------------------|-----------------------------|-----------------------------|------------------------------|---------------|
| CANADA GOOSE | | 2 | | | | | | | | | |
| MALLARD | | | | | | | | | | | |
| COMMON GOLDENEYE | | | | | | | | | | | |
| BALD EAGLE | | + 1 | | | | | | | | | |
| NORTHERN GOSHAWK | | | + 1 | | | | | | | | |
| GOLDEN EAGLE | | | | | | | | | | | |
| MERLIN | | | | | + 1 | | | | | | + |
| PRAIRIE FALCON | | | | | | | | | | | |
| GRAY PARTRIDGE | | 7 | | | 23 | | 4 | | 22 | 15 | 11 |
| RING-NECKED PHEASANT | | 12 | | | | | | | | | |
| RUFFED GROUSE | | | | | | | | | | 1 | |
| SHARP-TAILED GROUSE | | 10 | | | 19 | | 13 | 9 | + 1 | 25 | |
| ROCK DOVE | | | 30 | | 32 | | 32 | | | 17 | 23 |
| GREAT HORNED OWL | | | | | 1 | | 2 | | 2 | 2 | |
| SNOWY OWL | | | | | | | 1 | 1 | + 1 | | |
| SHORT-EARED OWL | | | | | + 1 | | | 1 | | | |
| DOWNY WOODPECKER | | | 3 | 2 | 1 | | 5 | 2 | 8 | 2 | |
| HAIRY WOODPECKER | | | 2 | 2 | | | 4 | | 2 | | |
| PILEATED WOODPECKER | | | | | | | | | | | |
| HORNED LARK | | | | | 67 | | | | | | |
| GRAY JAY | | | + 1 | | | | | | | | |
| BLUE JAY | | | 5 | 1 | 13 | | 7 | 5 | 4 | | |
| BLACK-BILLED MAGPIE | | 31 | 2 | 2 | 15 | 7 | 8 | 6 | 5 | 3 | 6 |
| COMMON RAVEN | | | 6 | 28 | | 2 | + 1 | 5 | 6 | | |
| BLACK-CAPPED CHICKADEE | | 1 | 12 | 6 | 10 | 1 | 119 | 5 | 18 | 5 | 3 |
| BOREAL CHICKADEE | | | | | | | 2 | | | | |
| RED-BREASTED NUTHATCH | | | | | | | 1 | | | | |
| WHITE-BREASTED NUTHATCH | | | | | | | | | 2 | | |
| GOLDEN-CROWNED KINGLET | | | | | | | | | | | |
| AMERICAN ROBIN | | | | | | | | | + 1 | | |
| BOHEMIAN WAXWING | | | | | | | 660 | | 350 | | |
| CEDAR WAXWING | | | | | | 20 | | | | | + |
| NORTHERN SHRIKE | | | | | | | | | | | |
| EUROPEAN STARLING | | | | | 5 | | 1 | | | | 16 |
| DARK-EYED JUNCO | | | | | | | | | 1 | | |
| SNOW BUNTING | | | + 60 | | 1325 | + 2000 | 1520 | 7 | + 300 | 1000 | |
| RUSTY BLACKBIRD | | | | | | | | | | | |
| PINE GROSBEAK | | | | | | | | | | | |
| WHITE-WINGED CROSSBILL | | | + 1 | | | | | | 1 | | |
| COMMON REDPOLL | | | | 6 | | | 1 | | | | 4 |
| HOARY REDPOLL | | | | | | | | | | | |
| PINE SISKIN | | | | | | | 2 | | | | |
| EVENING GROSBEAK | | | 50 | 25 | | | 11 | | 35 | | |
| HOUSE SPARROW | | 7 | 50 | 20 | 190 | | 105 | 12 | 650 | 20 | 107 |
| NO. INDIV. TABLES 3&4 | | | | | 1 | 1 | 2 | | | | |
| NO. SPECIES COUNT DAY | | 7 | 9 | 9 | 12 | 4 | 21 | 10 | 14 | 10 | 1 |
| NO. SPECIES COUNT PERIOD | | 8 | 13 | 9 | 15 | 6 | 22 | 10 | 18 | 10 | 1 |
| NO. SPECIES TABLE 3&4 | | | | | 1 | 1 | 2 | | | | |
| NO. INDIV COUNT DAY | | 70 | 160 | 92 | 1701 | 30 | 2500 | 53 | 1106 | 1090 | 175 |

Table 2-6. SPECIES RECORDED FROM MORE THAN FIVE LOCALITIES
 + = high count for a species seen during count period but not on count day)

| ST. MOUNSTER 16 Dec. 1988 | 52. NIPAWIN 30 Dec. 1988 | 53. OUTLOOK 16 Dec. 1988 | 54. PIKE LAKE 30 Dec. 1988 | 55. PREECEVILLE 26 Dec. 1988 | 56. PRINCE ALBERT (1) 27 Dec. 1988 | 57. PRINCE ALBERT (2) 18 Dec. 1988 | 58. PRINCE ALBERT N.P. 18 Dec. 1988 | 59. RAYMORE 25 Dec. 1988 | 60. REGINA 26 Dec. 1988 | LOCALITY & DATE SPECIES |
|------------------------------|-----------------------------|-----------------------------|-------------------------------|---------------------------------|---------------------------------------|---------------------------------------|--|-----------------------------|----------------------------|--------------------------------|
| | | | | | | | | | 696 | CANADA GOOSE |
| | | | | | | | | | 14 | MALLARD |
| | | 2 | | | | | | | 1 | COMMON GOLDENEYE |
| | | | | | | | 1 | | | BALD EAGLE |
| | | | | | | | 1 | | | NORTHERN GOSHAWK |
| | | | | | | | | | | GOLDEN EAGLE |
| 1 | | | | | | | | | 2 | MERLIN |
| | | | | | | | | | | PRAIRIE FALCON |
| 9 | | 11 | 3 | | | | | 7 | 95 | GRAY PARTRIDGE |
| | | | | | | | | | 1 | RING-NECKED PHEASANT |
| | +3 | | 1 | 1 | | | 9 | 2 | | RUFFED GROUSE |
| | | | 18 | | | | | 16 | 10 | SHARP-TAILED GROUSE |
| 110 | | 63 | 3 | | | 521 | | 13 | 1276 | ROCK DOVE |
| | | | 2 | | | | | 2 | 8 | GREAT HORNED OWL |
| | | 1 | | | | | | | 12 | SNOWY OWL |
| | | | 1 | | | | | | 3 | SHORT-EARED OWL |
| 1 | 2 | | 6 | 3 | 2 | | 6 | 1 | 4 | DOWNY WOODPECKER |
| | 2 | | 10 | 2 | 2 | 6 | 2 | 2 | 3 | HAIRY WOODPECKER |
| | | | | | 1 | | 4 | | | PILEATED WOODPECKER |
| | | 30 | | | | | | 22 | 86 | HORNED LARK |
| | | | 1 | | | 2 | 47 | | | GRAY JAY |
| 2 | 3 | | 21 | 1 | 2 | 5 | 4 | 1 | 1 | BLUE JAY |
| 21 | | 25 | 74 | | 4 | 65 | 45 | 43 | 117 | BLACK-BILLED MAGPIE |
| | 9 | | 1 | 2 | 3 | 87 | 48 | | | COMMON RAVEN |
| 16 | 6 | 9 | 49 | 10 | 6 | 19 | 75 | 7 | 18 | BLACK-CAPPED CHICKADEE |
| | | | | | | 1 | 19 | | | BOREAL CHICKADEE |
| | | | | | | | 3 | | | RED-BREASTED NUTHATCH |
| | +1 | | 2 | | 2 | 1 | 3 | | 8 | WHITE-BREASTED NUTHATCH |
| | | | | | | | 3 | | | GOLDEN-CROWNED KINGLET |
| | | | 3 | | | | | | 1 | AMERICAN ROBIN |
| | +15 | | 470 | | 40 | 316 | +4 | 27 | | BOHEMIAN WAXWING |
| | | | | | | 1 | | | | CEDAR WAXWING |
| | | | | | | | | | | NORTHERN SHRIKE |
| 15 | | 5 | | 5 | | 100 | | 12 | 161 | EUROPEAN STARLING |
| | | | | | | | | | 2 | DARK-EYED JUNCO |
| 00 | | | 104 | | | | | 1 | 460 | SNOW BUNTING |
| | | | | | | | | | | RUSTY BLACKBIRD |
| | 1 | | 2 | | | 6 | | | | PINE GROSBEAK |
| | | | | | | | 29 | | | WHITE-WINGED CROSSBILL |
| | | | 229 | | | 2 | | | | COMMON REDPOLL |
| | | | 1 | | | | 59 | | | HOARY REDPOLL |
| | | | 3 | | | | +3 | | | PINE SISKIN |
| | 52 | | 10 | 13 | 100 | 76 | 45 | | | EVENING GROSBEAK |
| 7 | | 300 | 440 | 7 | | 277 | | 1113 | 1858 | HOUSE SPARROW |
| | | | 2 | | 2 | 36 | 11 | 30 | 6 | NO. INDIV. TABLES 3&4 |
| 10 | 7 | 9 | 25 | 9 | 12 | 18 | 25 | 16 | 25 | NO. SPECIES COUNT DAY |
| 10 | 10 | 9 | 25 | 9 | 12 | 18 | 27 | 18 | 25 | NO. SPECIES COUNT PERIOD |
| | | | 2 | | 2 | 2 | 6 | 3 | 2 | NO. SPECIES TABLE 3&4 |
| 82 | 75 | 446 | 1456 | 44 | 164 | 1521 | 417 | 1299 | 4843 | NO. INDIV COUNT DAY |

Table 2-7. SPECIES RECORDED FROM MORE THAN FIVE LOCALITIES
(+ = high count for a species seen during count period but not on count day)

| SPECIES | LOCALITY & DATE | 61. ROUND LAKE 03 Jan. 1989 | 62. SANDY BAY 23 Dec. 1988 | 63. SASKATOON 26 Dec. 1988 | 64. SCOTT 02 Jan. 1989 | 65. SHAUNAVON 17 Dec. 1988 | 66. SHELLBROOK 27 Dec. 1988 | 67. SKULL CREEK 26 Dec. 1988 | 68. SNOWDEN 30 Dec. 1988 | 69. SOMME 17 Dec. 1988 | 70. SPINNEY HILL 18 Dec. 1988 |
|--------------------------|-----------------|--------------------------------|-------------------------------|-------------------------------|---------------------------|-------------------------------|--------------------------------|---------------------------------|-----------------------------|---------------------------|----------------------------------|
| CANADA GOOSE | | | | 32 | | | | | | | |
| MALLARD | | | | 38 | | | | | | | |
| COMMON GOLDENEYE | | | | 122 | | | | | | | |
| BALD EAGLE | | | | | | 1 | | | | 1 | |
| NORTHERN GOSHAWK | | | | | | | | + 1 | | 1 | |
| GOLDEN EAGLE | | | | | | | | 2 | | + 1 | |
| MERLIN | | | | 4 | | | | | | | |
| PRAIRIE FALCON | | | | | | | | | | | |
| GRAY PARTRIDGE | | 25 | | 9 | 15 | 26 | | 4 | | + 6 | |
| RING-NECKED PHEASANT | | 1 | | | | | | 8 | | | |
| RUFFED GROUSE | | 3 | | | | | 1 | | 1 | 5 | |
| SHARP-TAILED GROUSE | | 7 | 1 | 49 | 3 | + 2 | 14 | 13 | | 14 | |
| ROCK DOVE | | | | 2504 | 55 | | 38 | 64 | | 12 | |
| GREAT HORNED OWL | | 1 | 1 | 5 | 2 | 1 | 1 | 4 | + 1 | 3 | |
| SNOWY OWL | | | | | | | | | | 1 | |
| SHORT-EARED OWL | | | | | | | 1 | | | | |
| DOWNY WOODPECKER | | 6 | | 31 | 1 | | | 5 | 1 | 3 | |
| HAIRY WOODPECKER | | 7 | | 18 | | | | 6 | + 1 | 5 | |
| PILEATED WOODPECKER | | 1 | | | | | | | + 1 | 3 | |
| HORNED LARK | | | | 127 | 2 | 123 | | 160 | | + 1 | |
| GRAY JAY | | | 3 | | | | 1 | | 3 | 11 | |
| BLUE JAY | | 5 | | 14 | | | | | 11 | 10 | |
| BLACK-BILLED MAGPIE | | 22 | | 439 | 28 | 14 | | 39 | 6 | 9 | 1 |
| COMMON RAVEN | | 4 | 15 | | | | 14 | | 50 | 19 | |
| BLACK-CAPPED CHICKADEE | | 28 | | 205 | 5 | | 11 | 16 | 14 | 24 | |
| BOREAL CHICKADEE | | | | | | | 2 | | + 3 | 5 | |
| RED-BREASTED NUTHATCH | | | | 2 | | | | | | | |
| WHITE-BREASTED NUTHATCH | | 12 | | 1 | | | | | 1 | 2 | |
| GOLDEN-CROWNED KINGLET | | | | 3 | | | | | | | |
| AMERICAN ROBIN | | | | 4 | | | | 1 | | + 1 | |
| BOHEMIAN WAXWING | | | | 79 | 45 | | 85 | 105 | | | 3 |
| CEDAR WAXWING | | | | 3 | | | | | | | |
| NORTHERN SHRIKE | | | | 1 | | | | | | + 1 | |
| EUROPEAN STARLING | | 1 | | 32 | 4 | | | | | | |
| DARK-EYED JUNCO | | | | 1 | | | | 1 | | | |
| SNOW BUNTING | | | | 1166 | 884 | 100 | | 9 | 164 | 107 | 33 |
| RUSTY BLACKBIRD | | | | | | | | 1 | | | |
| PINE GROSBEAK | | | | 2 | | | 1 | | | 9 | |
| WHITE-WINGED CROSSBILL | | | | | 4 | | | | | | |
| COMMON REDPOLL | | 6 | | 283 | | | 552 | 11 | 5 | 30 | 6 |
| HOARY REDPOLL | | | | | | | 10 | | | + 1 | |
| PINE SISKIN | | | | 11 | | | | | | | |
| EVENING GROSBEAK | | 75 | | | | | 107 | | 186 | 14 | |
| HOUSE SPARROW | | 25 | | 2374 | 147 | 21 | 92 | 64 | 8 | 86 | |
| NO. INDIV. TABLES 3&4 | | 2 | 2 | 8 | | | | 63 | | 3 | |
| NO. SPECIES COUNT DAY | | 17 | 7 | 33 | 13 | 5 | 15 | 20 | 12 | 24 | |
| NO. SPECIES COUNT PERIOD | | 18 | 6 | 33 | 13 | 8 | 15 | 23 | 16 | 31 | |
| NO. SPECIES TABLE 3&4 | | 1 | 2 | 5 | | | | 4 | | 3 | |
| NO. INDIV COUNT DAY | | 229 | 21 | 7567 | 1195 | 185 | 930 | 573 | 450 | 376 | 40 |

ble 2-8. SPECIES RECORDED FROM MORE THAN FIVE LOCALITIES
 = high count for a species seen during count period but not on count day)

| 29 Dec. 1988 | 72. SPRUCE HOME 18 Dec. 1988 | 73. SQUAW RAPIDS 22 Dec. 1988 | 74. ST. WALBURG 26 Dec. 1988 | 75. TISDALE 25 Dec. 1988 | 76. TOMPKINS 29 Dec. 1988 | 77. TURTLE LAKE 26 Dec. 1988 | 78. VAL MARIE 20 Dec. 1988 | 79. WARMAN 26 Dec. 1988 | 80. WEYBURN 17 Dec. 1988 | LOCALITY & DATE | SPECIES |
|--------------|---------------------------------|----------------------------------|---------------------------------|-----------------------------|------------------------------|---------------------------------|-------------------------------|----------------------------|-----------------------------|-----------------|--------------------------|
| | | 34 | | | | | | | | | CANADA GOOSE |
| | | 157 | | | | | | | | | MALLARD |
| | | 8 | | | | +1 | | | | | COMMON GOLDENEYE |
| | | 3 | | | | +1 | | | | | BALD EAGLE |
| +1 | | | | | 3 | | 1 | | | | NORTHERN GOSHAWK |
| | | | | | | | | | 4 | | GOLDEN EAGLE |
| | | | | | | | | | 1 | | MERLIN |
| 89 | | | | | 9 | | 70 | | 239 | | PRAIRIE FALCON |
| | | | | | | | 90 | | 3 | | GRAY PARTRIDGE |
| | 1 | 2 | | | | 2 | | | | | RING-NECKED PHEASANT |
| 15 | | 3 | | | 54 | | 6 | 2 | 36 | | RUFFED GROUSE |
| 18 | | | | | | 4 | 34 | | 254 | | SHARP-TAILED GROUSE |
| 4 | 1 | 5 | | | | +1 | 4 | | 2 | | ROCK DOVE |
| -1 | | | | | | | | | 1 | | GREAT HORNED OWL |
| -2 | | | | | | | | | | | SNOWY OWL |
| | 1 | 3 | | 3 | | 2 | | | 1 | | SHORT-EARED OWL |
| | 1 | 8 | 2 | 1 | | 3 | | | 2 | | DOWNY WOODPECKER |
| | | 7 | | | | +1 | | | | | HAIRY WOODPECKER |
| 22 | | | | | 35 | | | | 11 | | PILEATED WOODPECKER |
| | | 7 | 1 | | | 5 | | | | | HORNED LARK |
| | 4 | 8 | 2 | 4 | | 7 | | | | | GRAY JAY |
| 4 | 2 | 16 | 3 | 6 | 8 | 7 | 80 | 8 | 25 | | BLUE JAY |
| | 3 | 81 | 18 | 9 | | 2 | | | | | BLACK-BILLED MAGPIE |
| | 17 | 13 | 2 | 5 | | 21 | | | 7 | | COMMON RAVEN |
| | | 7 | | | | 1 | | | | | BLACK-CAPPED CHICKADEE |
| | | | | | | +1 | | | | | BOREAL CHICKADEE |
| | | 1 | | | | 5 | | | 2 | | RED-BREASTED NUTHATCH |
| | | | | | | +2 | | | | | WHITE-BREASTED NUTHATCH |
| | | | | | | | | | | | GOLDEN-CROWNED KINGLET |
| | | | | | | | | | +1 | | AMERICAN ROBIN |
| | | | | | | | | | | | BOHEMIAN WAXWING |
| | | | | | | +1 | | | 1 | | CEDAR WAXWING |
| 4 | | | | | | +3 | | | | | NORTHERN SHRIKE |
| | | | | | | | | | 2 | | EUROPEAN STARLING |
| 0 | | | 18 | | 50 | | 38 | | 457 | | DARK-EYED JUNCO |
| | | | | | | +1 | | | | | SNOW BUNTING |
| | 10 | 85 | 8 | | | 1 | | | | | RUSTY BLACKBIRD |
| | | | | 11 | | | | | | | PINE GROSBEAK |
| 6 | | 24 | 5 | | | 8 | | | | | WHITE-WINGED CROSSBILL |
| | | | | | | 1 | | | | | COMMON REDPOLL |
| | | | | | | | | | | | HOARY REDPOLL |
| | 16 | 33 | | 10 | | 123 | | | | | PINE SISKIN |
| 5 | | 4 | 5 | 15 | | 3 | 30 | 5 | 836 | | EVENING GROSBEAK |
| 1 | | 31 | | | | 1 | | | 33 | | HOUSE SPARROW |
| 9 | 10 | 27 | 10 | 9 | 6 | 16 | 9 | 3 | 19 | | NO. INDIV. TABLES 3&4 |
| 4 | 10 | 27 | 10 | 9 | 6 | 26 | 9 | 3 | 23 | | NO. SPECIES COUNT DAY |
| 1 | | 7 | | | | 1 | | | 3 | | NO. SPECIES COUNT PERIOD |
| 2 | 56 | 540 | 64 | 64 | 159 | 228 | 353 | 15 | 1918 | | NO. SPECIES TABLE 3&4 |
| | | | | | | | | | | | NO. INDIV COUNT DAY |

Table 2-9. SPECIES RECORDED FROM MORE THAN FIVE LOCALITIES
 (+ = high count for a species seen during count period but not on count day)

| SPECIES | LOCALITY & DATE | 81. WHITE BEAR LAKE 20 Dec. 1988 | 82. WHITEBEECH 01 Jan. 1989 | 83. WOLSELEY 01 Jan. 1989 | 84. YORKTON 17 Dec. 1988 | TOTAL INDIVIDUALS | NUMBER OF COUNTS ON COUNT DAY | NUMBER OF COUNTS |
|--------------------------|-----------------|-------------------------------------|--------------------------------|------------------------------|-----------------------------|----------------------|----------------------------------|------------------|
| CANADA GOOSE | | | | | | 2178 | 9 | |
| MALLARD | | | | | 8 | 9163 | 10 | |
| COMMON GOLDENEYE | | | | | | 359 | 7 | |
| BALD EAGLE | | | + 1 | | | 24 | 5 | |
| NORTHERN GOSHAWK | | | | | | 6 | 6 | |
| GOLDEN EAGLE | | | | | | 43 | 13 | |
| MERLIN | | | | | + 1 | 20 | 10 | |
| PRAIRIE FALCON | | | | | | 5 | 4 | |
| GRAY PARTRIDGE | | | + 4 | 6 | | 1524 | 42 | |
| RING-NECKED PHEASANT | | | | | | 157 | 14 | |
| RUFFED GROUSE | | | + 1 | 1 | | 97 | 30 | |
| SHARP-TAILED GROUSE | | 2 | | + 6 | 15 | 649 | 44 | |
| ROCK DOVE | | 17 | | + 5 | 328 | 6498 | 47 | |
| GREAT HORNED OWL | | | | 1 | | 91 | 44 | |
| SNOWY OWL | | | | | | 39 | 19 | |
| SHORT-EARED OWL | | | | | | 19 | 13 | |
| DOWNY WOODPECKER | | 3 | | | 3 | 200 | 53 | |
| HAIRY WOODPECKER | | 8 | 2 | + 1 | | 192 | 48 | |
| PILEATED WOODPECKER | | | | | | 13 | 7 | |
| HORNED LARK | | | | + 2 | | 5921 | 30 | |
| GRAY JAY | | | | | | 93 | 16 | |
| BLUE JAY | | 3 | 4 | | 2 | 237 | 44 | |
| BLACK-BILLED MAGPIE | | 23 | | 8 | 20 | 2332 | 75 | |
| COMMON RAVEN | | | + 5 | | 3 | 649 | 34 | |
| BLACK-CAPPED CHICKADEE | | 52 | 4 | + 2 | 27 | 1613 | 64 | |
| BOREAL CHICKADEE | | | | | | 66 | 13 | |
| RED-BREASTED NUTHATCH | | | | | 1 | 34 | 8 | |
| WHITE-BREASTED NUTHATCH | | 6 | | | | 95 | 25 | |
| GOLDEN-CROWNED KINGLET | | | | | | 32 | 6 | |
| AMERICAN ROBIN | | | | | | 11 | 6 | |
| BOHEMIAN WAXWING | | | | | 6 | 2575 | 18 | |
| CEDAR WAXWING | | | | | | 147 | 5 | |
| NORTHERN SHRIKE | | | | | | 17 | 10 | |
| EUROPEAN STARLING | | | | | | 710 | 23 | |
| DARK-EYED JUNCO | | | | | | 25 | 9 | |
| SNOW BUNTING | | | | + 1 | 2 | 16100 | 50 | |
| RUSTY BLACKBIRD | | | | 1 | | 28 | 7 | |
| PINE GROSBEAK | | | 4 | | | 238 | 20 | |
| WHITE-WINGED CROSSBILL | | | | | | 74 | 8 | |
| COMMON REDPOLL | | 25 | + 6 | 60 | | 2213 | 36 | |
| HOARY REDPOLL | | | | | | 88 | 7 | |
| PINE SISKIN | | 1 | | | | 24 | 5 | |
| EVENING GROSBEAK | | | 65 | | | 1318 | 30 | |
| HOUSE SPARROW | | 55 | 5 | 50 | 360 | 15255 | 70 | |
| NO. INDIV. TABLES 3&4 | | | | | 2 | | | |
| NO. SPECIES COUNT DAY | | 11 | 6 | 6 | 14 | | | |
| NO. SPECIES COUNT PERIOD | | 11 | 9 | 14 | 15 | | | |
| NO. SPECIES TABLE 3&4 | | | | | 1 | | | |
| NO. INDIV COUNT DAY | | 195 | 84 | 121 | 783 | | | |

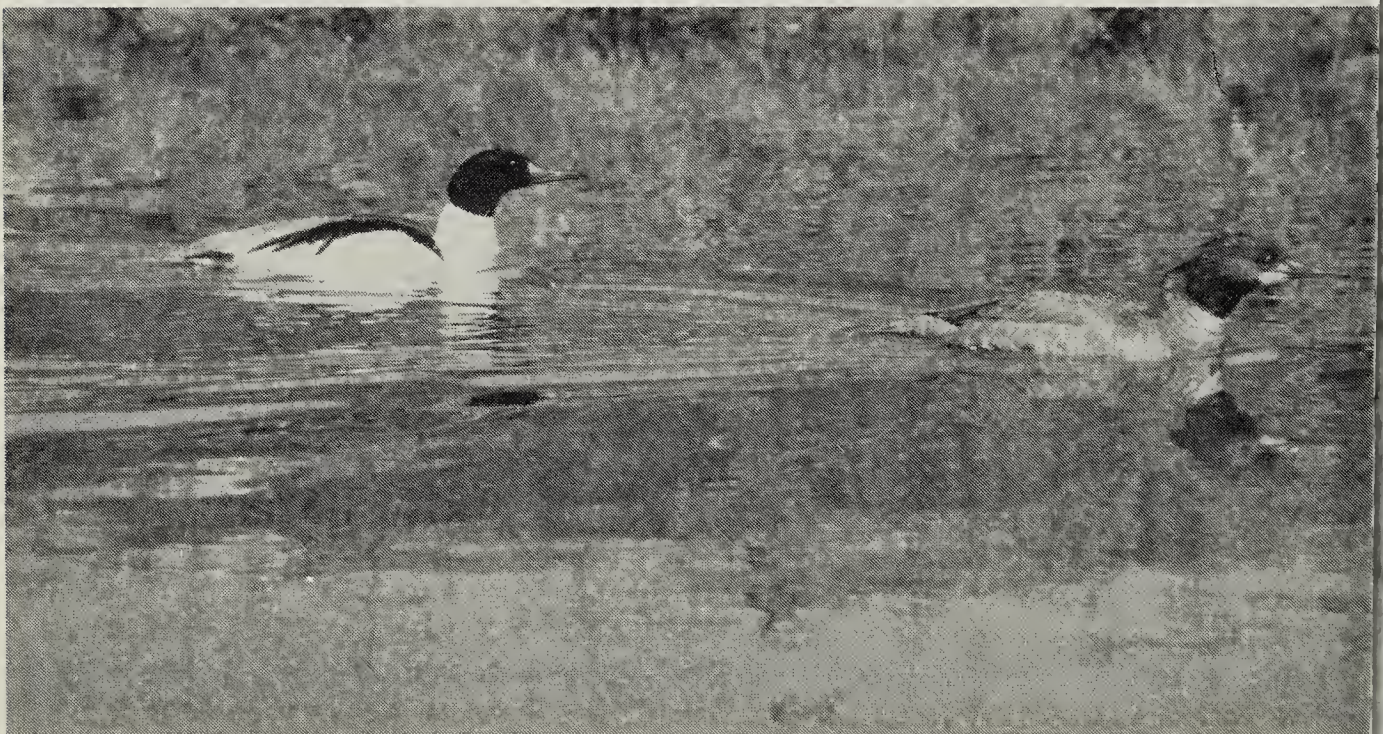
Table 3. SPECIES SEEN IN FIVE OR FEWER LOCALITIES

| SPECIES | LOCATIONS AND NUMBERS |
|-------------------------|---|
| RED-NECKED GREBE | Squaw Rapids, 1 |
| WESTERN GREBE | Gardiner Dam, 1 |
| GREAT BLUE HERON | Barrier Lake, 1 |
| TUNDRA SWAN | Gardiner Dam, 7 |
| TRUMPETER SWAN | Douglas Provincial Park, 3 |
| GR. WHITE-FRONTED GOOSE | Gardiner Dam, 2 |
| WOOD DUCK | Gardiner Dam, + 1 |
| GREEN-WINGED TEAL | Gardiner Dam, 1 |
| AMERICAN BLACK DUCK | Gardiner Dam, 1 |
| NORTHERN PINTAIL | Gardiner Dam, 14 |
| BLUE-WINGED TEAL | Yorkton, 2 |
| AMERICAN WIGEON | Gardiner Dam, 1 |
| CANVASBACK | Douglas Provincial Park, 4 |
| REDHEAD | Fort Qu'appelle, 1 |
| LESSER SCAUP | Gardiner Dam, 4 |
| BUFFLEHEAD | Douglas Provincial Park, 4 |
| HOODED MERGANSER | Gardiner Dam, 1 |
| COMMON MERGANSER | Douglas Provincial Park, 1; Fort Qu'appelle, 1; Gardiner Dam, 52; Squaw Rapids, 7 |
| RED-BREASTED MERGANSER | Gardiner Dam, 2 |
| NORTHERN HARRIER | Grasslands National Park, 1 |
| SHARP-SHINNED HAWK | Indian Head, 1; Skull Creek, + 2 |
| COOPER'S HAWK | Raymore, + 1 |
| RED-TAILED HAWK | Kutawagan Lake, 1 |
| ROUGH-LEGGED HAWK | Fort Walsh, + 2; Gardiner Dam, 1; Govenlock, 1; Grasslands National Park, 1; Pike Lake, 1 |
| AMERICAN KESTREL | Dalmeny, 1; Grassland National Park, 1 |
| PEREGRINE FALCON | Gardiner Dam, 1; Grasslands National Park, 1; Skull Creek, + 1 |
| CYRFALCON | Gardiner Dam, 1; Grasslands N.P., 1; Marsden, 1; Skull Creek, + 1 Spring Valley, + 1 |
| SPRUCE GROUSE | Prince Albert National Park, 3 |
| WILLOW PTARMIGAN | Sandy Bay, + 1 |
| SAGE GROUE | Govenlock, + 7; Grasslands National Park, 6 |
| WILD TURKEY | Cypress Hills Provincial Park, 17; Fort Walsh, 26; Kamsack, 2 |
| RINGED-BILLED GULL | Gardiner Dam, 1 |
| HERRING GULL | Gardiner Dam, 8 |
| THAYER'S GULL | Gardiner Dam, 1 |
| GLAUCOUS GULL | Gardiner Dam, 4 |
| MOURNING DOVE | Fort Walsh, 1 |
| NORTHERN HAWK-OWL | Birch Hills, 1; Humboldt, 1; Marcelin, + 1 |
| BARRED OWL | Prince Albert National Park, 1; Squaw Rapids, 2 |
| GREAT GRAY OWL | Bangor, 1; Prince Albert N.P., 1; Turtle Lake, + 1; Squaw Rapids, 8 |
| BOREAL OWL | Raymore, + 1 |
| NORTHERN SAW-WHET OWL | Fort Qu'appelle, + 1; Luseland, + 1 |
| HELTED KINGFISHER | Fort Qu'appelle, 1 |
| THREE-TOED WOODPECKER | Carragana, 1; Fort Walsh, 2; Greenwater Provincial Park, 1; Prince Albert National Park, 2; Somme, 1 |
| BLACK-BACKED WOODPECKER | Barrier Lake, 1; Prince Albert N.P., 3; Somme, + 1; Squaw Rapids, 2 |
| NORTHERN FLICKER | Marsden, 1; Moose Jaw, + 1; Regina, 3; Saskatoon, 3 |
| AMERICAN CROW | Regina, 3; Saskatoon, 1 |
| BROWN CREEPER | Estevan, 1; Fort Walsh, 2; Saskatoon, 1; Squaw Rapids, 1 |
| AMERICAN TREE SPARROW | Fort Qu'appelle, + 1; Fort Walsh, 28; Govenlock, 2; Gardiner Dam, 14; Saskatoon, 1; Skull Creek, 8 |
| LONG SPARROW | Fort Qu'appelle, 2 |
| APLAND LONGSPUR | Big Muddy Lake, 5272; Govenlock, 8; Saskatoon, 2; Weyburn, 30 |
| RED-WINGED BLACKBIRD | Broadview, 3; Fort Walsh, 2; Indian Head, 1 |
| COMMON GRACKLE | Prince Albert (1), 1; Weyburn, 2 |
| REWER'S BLACKBIRD | Kamsack, 1; Somme, 1; Weyburn, 1 |
| ROSY FINCH | Fort Walsh, 37; Skull Creek, 52 |
| PURPLE FINCH | Abernethy, 12; Fort Qu'appelle, 8; Indian Head, 2; Prince Albert, (1), 1; Round Lake, + 2 |
| RED CROSSBILL | Cypress Hills 1; Fort Walsh, 16 |



Wood Duck

G.L. Holroyd



Common Mergansers

Fred Lahrmann

Table 4. BIRDS NOT IDENTIFIED TO SPECIES

| SPECIES | LOCATIONS AND NUMBERS SEEN |
|---------------|--|
| DUCK sp | Gardiner Dam, 100 |
| ACCIPITER sp | Prince Albert(2), 1 |
| AGLE sp | Gardiner Dam, 1; Pike Lake 1 |
| ROUSE sp | Prince Albert National Park, 3 |
| WOODPECKER sp | Assiniboia 1; Biggar, 1; Prince Albert National Park, 1 |
| HICKADEE sp | Sandy Bay, 1 |
| AXWING sp | Prince Albert(2), 38 |
| ONGSPUR sp | Govenlock, 1 |
| D POLL sp | Big Muddy Lake, 1; Fort Walsh, 83; Govenlock, 7; Raymore, 30; Squaw Rapids, 10 |

Table 5. SUMMARY OF NEW OR TYING HIGH COUNTS ESTABLISHED DURING 1988 COUNTS; CP = count period
(Counts in regular type, new highs in boldface)

| LOCATION | 1989 COUNT | SPECIES | PREVIOUS HIGH | LOCATION AND YEAR |
|------------------|---------------|----------------------|------------------|---|
| Squaw Rapids | 1 | Red-necked Grebe | 1 | Regina 68 |
| Gardiner Dam | 1 | Western Grebe | 1 | Gardiner Dam 79; Regina 56, 59 |
| Carrier Lake | 1 | Great Blue Heron | 1 | Ft. Walsh 85 |
| Glasgow P. Park | 3 | Trumpeter Swan | 1 | Regina 65; Squaw Rapids 85 |
| Gardiner Dam | 2 | Gr. Wh.-front. Goose | 1 | Saskatoon 74 |
| [P Gardiner Dam] | [1] | Wood Duck | | NEW |
| Gardiner Dam | 1 | Am. Black Duck | 1 | Regina 73 |
| Gardiner Dam | 8956 | Mallard | 1225 | Gardiner Dam 82 |
| Gardiner Dam | 14 | Northern Pintail | 4 | Saskatoon 79 |
| Saskatoon | 2 | Blue-winged Teal | 2 | Regina 62 |
| Glasgow P. Park | 4 | Canvasback | 4 | Regina 70 |
| Glasgow P. Park | 4 | Bufflehead | 2 | Regina 73 |
| Assiniboia N. P. | 1 | Northern Harrier | 1 | N to Harris, Hawarden |
| Indian Head | 1 | Sharp-shinned Hawk | 1 | N to Birch Hills |
| [P Skull Creek] | [2] | | | |
| [P Raymore] | [1] | Cooper's Hawk | 1 | N to Battleford |
| Gardiner Dam, | 1 | Peregrine Falcon | 1 | N to Squaw Rapids-Carrot River |
| Assiniboia N.P. | | | | |
| [P Skull Creek] | [1] | | | |
| Marie | 90 | Ring-necked Pheasant | 55 | Woodrow 59 |
| Ft Walsh | 26 | Wild Turkey | 17 | Ft. Walsh 87 |
| Gardiner Dam | 8 | Herring Gull | 3 | Gardiner Dam 87 |
| Gardiner Dam | 1 | Thayer's Gull | | NEW |
| Gardiner Dam | 4 | Glaucous Gull | 4 | Gardiner Dam 87 |
| Squaw Rapids | 2 | Barred Owl | 1 | S to Regina |
| Squaw Rapids | 8 | Great Gray Owl | 2 | Nipawin 73; Squaw Rapids 82; Prince Albert National Pk 77 |
| [P Raymore] | [1] | Boreal Owl | 1 | S to Indian Head |
| Qu'appelle, | 1 | N. Saw-whet Owl | 1 | N to Maidstone Bridge |
| [P Luseland] | | | | |
| Qu'appelle | 1 | Belted Kingfisher | 1 | Ft. Walsh 83 |
| Qu'appelle | 2 | Song Sparrow | 1 | N to Saskatoon |
| Muddy Lake | 5272 | Lapland Longspur | 200 | Caron 71 |

AUDUBON CHRISTMAS BIRD COUNTS: SASKATCHEWAN TOPS IN HIGH INDIVIDUAL NUMBERS

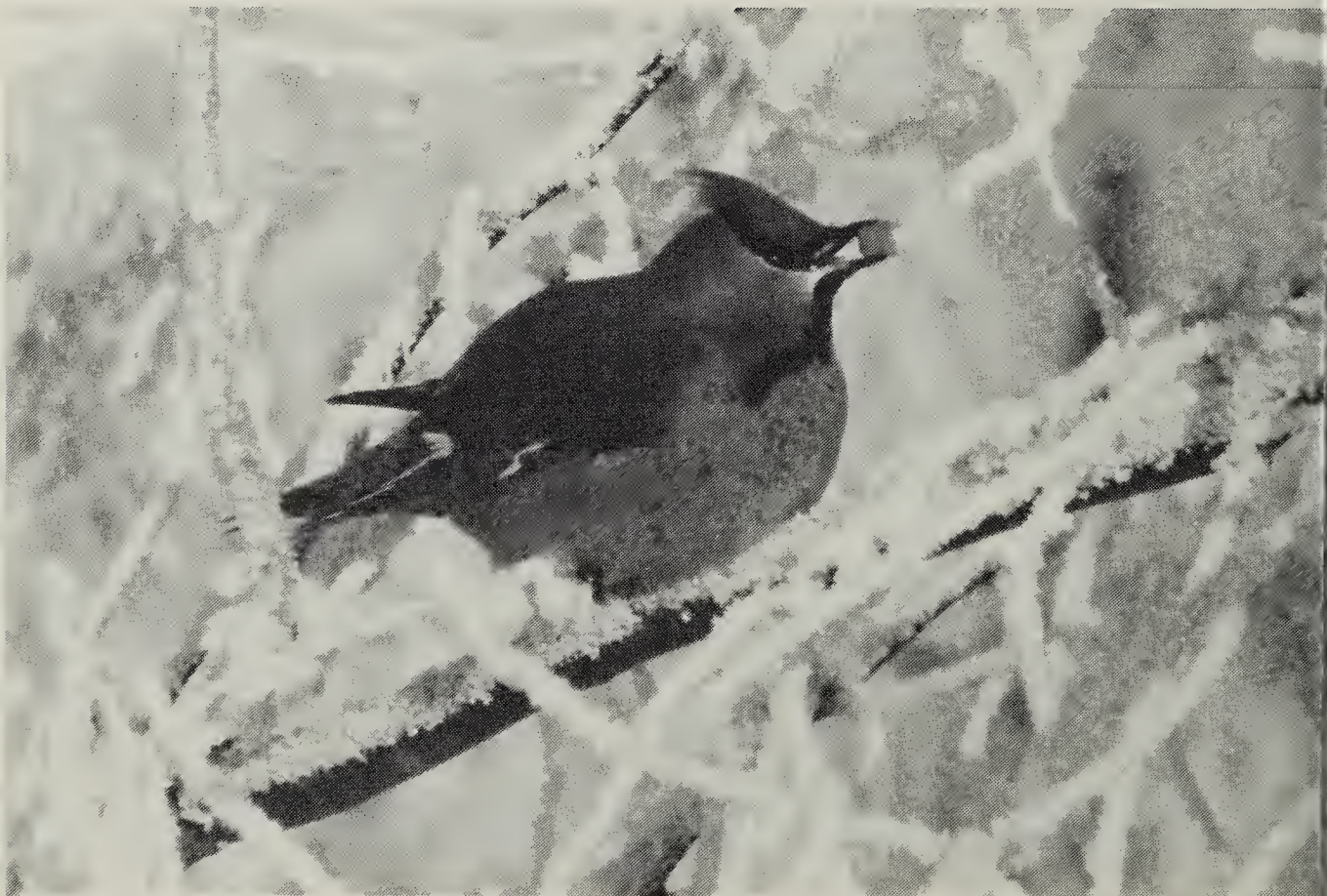
C. STUART HOUSTON and MARY I. HOUSTON, 863 University Drive, Saskatoon, Saskatchewan. S7N 0J8

Christmas bird counts get us out to count birds all day at a time of year when without this stimulus we'd be finding pastimes within the comfort of our home. It has been of interest to us to list those species for which a Saskatchewan locality recorded a higher number of individuals than any other locality in North America, 1942-1985, or in Canada, 1971-1985, during that Christmas season.

Unlike the Saskatchewan Natural History Society counts published in *Blue Jay* (already summarized through 1986² and not considered further in this summary), the National Audubon

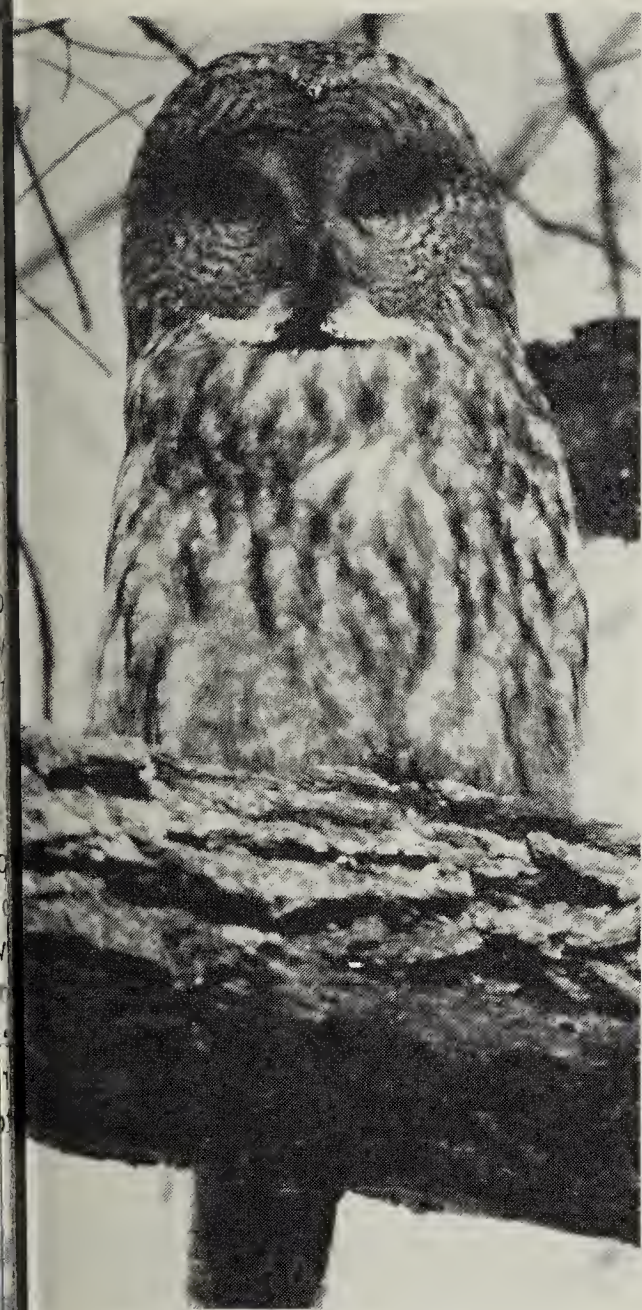
Society has rigid requirements including a minimum of eight hours in the field, keeping within a 15-mile (24 km) diameter circle. The 88th annual continent-wide count for Christmas week in 1987 required 1198 pages to print data from 41,920 observers in 15 localities.

Before 1942, there was sporadic publication in *Bird Lore*, the precursor of *American Birds*, of five Saskatchewan counts, one by S.W. Calvert of Lashburn (1913), two by Laurence B. Potter (1919, 1930) and two by Billings and Farley Mowat in Saskatoon (1935, 1936).¹



Bohemian Waxwing

Juhachi



Great Gray Owl

Wayne Lynch

Table 1. AUDUBON COUNTS IN SASKATCHEWAN THROUGH 1985

| <i>Location</i> | <i>Counts</i> | <i>Years</i> |
|----------------------|---------------|---------------------------------|
| Besnard Lake | 1 | 1974 |
| Biggar | 10 | 1976-85 |
| Big Gully | 3 | 1982-83, 1985 |
| Black Lake | 1 | 1972 |
| Carlton | 2 | 1956-57 |
| Cumberland House | 2 | 1969-70 |
| Fort Walsh | 10 | 1976-85 |
| Gardiner Dam | 7 | 1979-85 |
| Govenlock | 7 | 1979-85 |
| Harris-Valley Centre | 5 | 1971-76 |
| Kamsack-Madge L. | 1 | 1959 |
| Kutawagan | 4 | 1982-85 |
| La Loche | 1 | 1966 |
| Last Mountain WMU | 4 | 1982-85 |
| Maidstone Bridge | 3 | 1982-83, 1985 |
| Prince Albert | 2 | 1968-69 |
| Prince Albert N.P. | 4 | 1982-85 |
| Raymore | 4 | 1982-85 |
| Regina | 27 | 1955-57, 1961-71, 1973-85 |
| Saskatoon | 28 | 1955, 1959-85 |
| Scott | 4 | 1982-85 |
| Sheho | 1 | 1949 |
| Squaw Rapids | 7 | 1979-85 |
| Yorkton | 17 | 1942-54, 1956-59 |

from 1942 through 1959, missing by 1955, Yorkton counts were published in *American Birds*. For most of these years through 1954, Yorkton was the only locality in Western Canada, except for Winnipeg, Manitoba in 1947 and 1950, Sheho, Saskatchewan in 1949 and Grande Prairie, Alberta in 1953. Paradoxically, in 1955, when the Audubon Society first made a 10-cent participation fee compulsory, there was a sudden increase in submissions to *American Birds*. Regina, Saskatchewan and Edmonton, Alberta began fairly regular submissions in 1955; from British Columbia came the reports of Couver and Ladner, in 1957, Vic-

toria in 1958 and Banff in 1959. Winnipeg resumed contributions in 1961. Subsequent western participation continued to increase; this summary is of counts only from Saskatchewan.

In *American Birds*, counts from Saskatoon appeared once in 1955 and regularly from 1959. Regina counts were published in *American Birds* in 1955-57 and 1961-85 with the exception of 1972. Step-like increments in the numbers of localities occurred in 1976, 1979 and 1982 with a total number of 24 localities reporting to Audubon, peaking at 15 localities in one year, 1983. A summary of the years for each

Table 2. TOP NUMBERS OF INDIVIDUALS, CONTINENT-WIDE
 (Saskatchewan center that topped other centers on this continent in individuals
 that species for that year)
 [Year count period begins (number of individual birds)]

| <i>Species</i> | <i>Counts</i> | <i>Harris</i> | <i>Regina</i> | <i>Squaw Rapids</i> |
|-------------------------|---------------|---------------|---------------|---------------------|
| Northern Goshawk | 5 | - | - | 79(13) |
| | | - | - | 80(16) |
| | | - | - | 81(10) |
| Merlin | 1 | - | - | - |
| Gyr Falcon | 3 | 71(1)* | 74(1)* | - |
| Prairie Falcon | 1 | - | 71(1) | - |
| Gray Partridge | 7 | 73(239) | - | - |
| | | - | - | - |
| | | - | - | - |
| | | - | - | - |
| Spruce Grouse | 3 | - | - | 85(6) |
| | | - | - | - |
| Willow Ptarmigan | 1 | - | - | - |
| Sage Grouse | 1 | - | - | - |
| Sharp-tailed Grouse | 13 | 71(232) | - | - |
| | | 73(183) | - | - |
| | | 74(180) | - | - |
| | | 75(217) | - | - |
| | | 76(150) | - | - |
| | | 86(183) | - | - |
| Snowy Owl | 3 | - | 75(15)* | - |
| | | - | 79(24) | - |
| Northern Hawk-Owl | 1 | - | - | - |
| Great Gray Owl | 1 | - | - | 84(1)* |
| Boreal Owl | 13 | - | - | 82(1) |
| | | - | - | 83(1)* |
| Three-toed Woodpecker | 1 | - | - | - |
| Black-backed Woodpecker | 1 | - | - | 85(6) |
| Bohemian Waxwing | 3 | - | - | - |
| | | - | - | - |
| | | - | - | - |
| Snow Bunting | 6 | - | 63(1780) | 78(10012) |
| | | - | - | - |
| Pine Grosbeak | 3 | - | - | - |
| | | - | - | - |
| | | - | - | - |
| Common Redpoll | 1 | - | - | - |
| Hoary Redpoll | 4 | - | - | - |
| | - | - | - | - |

* number tied with another locality for that year

Saskatchewan locality is given in Table 1.

A Saskatchewan locality has in one year or another led the continent for 20

species, with upland game spe predominating (Table 2). Saskatoon the greatest number of "top numb (22), followed by Squaw Rapids Harris (8), Regina and Yorkton (5 ea

| <i>Saskatoon</i> | <i>Yorkton</i> | <i>Other</i> | <i>Species</i> |
|--|--------------------------------------|--|--|
| 71(2)* - - | - - - | Carlton 56(3) - - | Northern Goshawk |
| 72(6)* 71(1)* - | - - - | - - - | Merlin Gyr Falcon Prairie Falcon |
| 63(127) 67(269) 69(350) 70(532) | 52(18)* - - - | Gardiner Dam 84(225) - - - | Gray Partridge |
| - - - - | - - - - | Besnard Lake 74(2)* LaLoche 66(1)* La Loche 66(6) Govenlock 79(106) | Spruce Grouse Willow Ptarmigan Sage Grouse |
| 63(106) 65(53) 66(74) 68(138) - - | 49(46) 56(63) - - - - | Last Mt WMU 82(137) - - - - | Sharp-tailed Grouse |
| - - 77(1)* - | 54(9) - - - | - - - - | Snowy Owl Northern Hawk-Owl Great Gray Owl |
| - - - - | - - - - | Big Gully 85(1) - Kamsack 59(1)* - | Boreal Owl Three-toed Woodpecker Black-backed Woodpecker |
| 67(4299) 75(12442) 83(6047) | - - - | - - - | Bohemian Waxwing |
| 55(792) - 55(118) 62(123) 69(422) | 52(520) - - - - | Govenlock 84(4405) Raymore 82(33935) - - - | Snow Bunting Pine Grosbeak |
| 63(1676) 63(13) 71(33) | - - - | - Cumberland House 69(62) Fort Walsh 82(15) | Common Redpoll Hoary Redpoll - |

Similarly, Sharp-tailed Grouse and Sage Grouse have most often led the list with high numbers for Canada, compiled annually since 1971 (Table 3). Saskatoon again led this list with 9, fol-

lowed by Fort Walsh (8) and Govenlock (7).

With wide representation across the entire continent by standardized counts

Table 3. TOP NUMBER INDIVIDUALS FOR CANADA (since 1971)
 [NOTE: If tops continent-wide, not repeated here]
 [Year(number of individual birds)]

| Species | Counts | Fort Walsh | Govenlock | Regina | Squaw Rapids | Saskatoon | Other |
|---------------------|--------|------------|-----------|--------|--------------|-----------|---------------------|
| Turkey Vulture | 1 | 84(1) | - | - | - | - | - |
| Golden Eagle | 2 | 76(4) | - | - | - | - | - |
| | | 77(5)* | - | - | - | - | - |
| Merlin | 2 | - | - | - | - | 74(6)* | - |
| | | - | - | - | - | 75(5)* | - |
| Gyr Falcon | 2 | - | - | - | 79(1)* | 73(1)* | - |
| Sage Grouse | 5 | - | 80(2) | - | - | - | - |
| | | - | 81(5) | - | - | - | - |
| | | - | 82(7) | - | - | - | - |
| | | - | 83(95) | - | - | - | - |
| | | - | 85(3) | - | - | - | - |
| Sharp-tailed Grouse | 6 | - | - | - | - | 78(93) | Biggar 77(99) |
| | | - | - | - | - | 84(116) | Gardiner Dam 83(5) |
| | | - | - | - | - | 85(58) | Harris 72(386) |
| Northern Hawk-Owl | 2 | - | - | - | 79(1)* | - | - |
| | | - | - | - | 85(1)* | - | - |
| Loggerhead Shrike | 1 | - | - | 82(1)* | - | - | - |
| Harris' Sparrow | 1 | 82(1) | - | - | - | - | - |
| McCown's Longspur | 1 | - | 82(1) | - | - | - | - |
| Lapland Longspur | 2 | - | 82(38) | 75(21) | - | - | - |
| Rosy Finch | 4 | 76(140) | - | - | - | - | - |
| | | 79(22) | - | - | - | - | - |
| | | 83(488) | - | - | - | - | - |
| | | 84(143) | - | - | - | - | - |
| Common Redpoll | 1 | - | - | - | - | 77(2453) | - |
| Hoary Redpoll | 2 | - | - | - | - | 75(52) | Besnard Lake 74(12) |
| House Sparrow | 1 | - | - | - | - | 72(2820) | - |

* tied with one or more other counts in Canada

of high quality, a number of excellent studies have shown changes in continental winter bird numbers and distribution that would not have been possible otherwise. A central publication source makes gathering of this information possible. A comparison of Saskatchewan numbers with those of other regions has not been compiled previously.

¹ HOUSTON, M.I. and C. STUART HOUSTON. 1976. Prairie Christmas bird counts, 1906-1941. *Blue Jay* 34:214-219.

² RENAUD, W.E. and G.J. WAPPL 1977. A review of Saskatchewan Christmas bird counts, 1942-1976. *Blue Jay* 35:224-239.

³ RENAUD, W.E. and G.J. WAPPL 1979. A preliminary study of vegetation zones and winter bird distribution Saskatchewan. *Blue Jay* 37:202-208.

⁴ RENAUD, W.E., G.J. WAPPLE and R. WAPPLE. 1988. A summary of Saskatchewan Christmas bird counts: 1941-1986. *Blue Jay* 46:29-33.

USE OF A WHOOPING CRANE NEST BY SANDHILL CRANE

NIE KUYT, Canadian Wildlife Service, Room 210, 4999 - 98 Avenue, Edmonton, Alberta. T6B 2X3

Each spring the Canadian Wildlife Service (CWS) surveys the Whooping Crane breeding range in Wood Buffalo National Park (WBNP) to determine initiation of nest building and egg laying by Whooping Cranes as well as location, number of nests, clutch size and identification of nesting and non-nesting birds based on individually diagnostic colour bands.⁸ Most of the work is done in nature, and is carried out by means of surveys in small fixed-wing aircraft, based in Fort Smith, Northwest Territories.⁶

During the removal of surplus eggs in May, nests, nest ponds and eggs are examined.⁴ A Bell 206 helicopter is used during these visits, the only times of the spring when observers are on the ground. The pilot lands the helicopter close to the nest as convenient without dislodging nesting material by rotor wash. Duration of nest visits from landing of helicopter to take-off depends on the type of helicopter, overcarriage (pontoons are best and skids better than low ones), skill and experience of the pilot in handling the machine and in selecting landing sites, and on the difficulty of the terrain. Egg collectors must traverse between helicopter and nest. Nest visits (n = 82) during egg pickup from 1986 - 1988 varied from 3 - 20 min. per nest; the mean nest visit lasted 8.5 min. During this time, one or two observers climb or wade from the helicopter to the nest, photograph the nest, record nest dimensions and water depth of nest pond, test viability of one or both eggs in the nest, collect one egg and return to the helicopter. The viability test in-

volves briefly immersing the egg in a container of 30 - 34°C water and watching for movements of the egg in still water. Egg removals since 1985 have taken place between 21 and 27 May and, as most eggs are then about 24 days old (incubation period of 29 - 30 days), the embryo is large and its movements within the shell cause the egg to rotate or rock. The live egg selected to remain is carefully blotted dry and replaced in the nest. Sometimes the second egg is also tested at the nest in case substitution of a live egg into a nest containing non-viable eggs has to be made. The result of this nest management is that a maximum of viable single egg clutches is being incubated by Whooping Cranes. Since 1985, the technique has resulted in a 12 - 16% increase in hatching success of single egg clutches left in WBNP and undoubtedly has enhanced production of juvenile birds.

On 8 May 1988 nest 21/88 was found in the northwest corner of the "non-breeder" area between Sass and Klewi rivers.⁵ One of the two adults attending the nest was colour-banded on 13 August 1979 as an unfledged chick in the Klewi marshes about 10 km northeast of the location of nest 21/88. That bird, banded BWB-Red was found with an unbanded bird at its first nest (26/84) in May 1984 about 2.6 km northeast of present nest 21/88.⁸ The two cranes produced two eggs in 1984 and the chick, hatched from the egg left in the nest after the 1984 egg pickup was colour-banded (White-Blue) in August 1984. That fall, the unbanded adult apparently collided with a power line near Lin-



Figure 1. Nest 21/88 containing two Whooping Crane eggs (right side) and one Sandhill Crane egg (left side of nest), 27 May 1988 Jacques Sa

ton, North Dakota and the bird, later determined to be a male, was taken into captivity where it eventually died of its injuries. The surviving adult and her juvenile White-Blue safely reached the winter range on the Aransas National Wildlife Refuge (ANWR).

Although female BWB-Red became associated with an adult male at ANWR that winter and apparently began spring migration with that bird, the male bred with an unbanded female in 1985 and I have little information on the summer location of BWB-Red. On 18 September Paul Goossen (pers. comm.) saw the female with her yearling White-Blue and an apparently unbanded crane just east of a shallow reference lake, called Whale Lake, about 450 m south of the eventual nest 21/88. It is highly unlikely that BWB-Red nested in 1985 and she spent the winter at ANWR with sub-

adults (Tom Stehn, pers. comm.) though it is possible that the unbanded crane may have been with her.

I did not locate BWB-Red in 1986 obviously she had nested somewhere for when she arrived at ANWR in 1986 she was accompanied by an unbanded chick and an unbanded adult. Sometime in the autumn of 1986 the female's colour bands disappeared. The bird, still carrying a metal band on the left leg, became difficult to identify.

In 1987 additional information was obtained about BWB-Red. On 7 November I found a Whooping Crane on a small nest island in a 150 m long and 6 m wide oval lake, about 200 m north of Whale Lake. As the survey aircraft flying at 300 - 350 m, circled the nest (nest 27/87) the bird stood up (revealed

two eggs in the nest) and moved into a stand of spruce trees beside the nest pond. It is unusual for a Whooping Crane to leave the nest when the aircraft is at that altitude and the crane's behaviour as well as the presence of a pair of feeding Whooping Cranes only 300 m from the nest may have been indicative of a relatively inexperienced breeding pair at nest 27/87. Two subsequent aerial surveys at 300 m altitude confirmed the skittish nature of the incubating bird which would stand up at our approach, walk into the same clump of spruce trees and remain standing a few metres from the nest until the aircraft had left. The bird's mate was observed on all three occasions, first about 100 m from the nest, and 10 m from the nest on the latter two occasions. Because of the bird's behaviour and a concern that the crane might abandon its nest I decided not to disturb the incubating bird again and not to collect an egg during the 1987 egg pickup.

Our next survey, on 16 June, revealed that both eggs had hatched as the parents, feeding on the west shore of Wahle Lake, were accompanied by two small chicks. Our 30 July survey indicated one of the chicks had disappeared but the surviving chick was captured and colour-banded on 8 August. The family group arrived at ANWR that fall and Tom Stehn (pers. comm.) observed the female's metal band and indicated that, also based on his knowledge of Whooping Crane winter territories, the male was the former BWB-Red.

Aerial surveys on 29 April and 3 May 1988 revealed no whooping Cranes near the previous year's nest 27/87 but on 5 May we sighted a pair of Whooping Cranes on the ground 250 m east of Wahle Lake and nearby a flying Sandhill Crane. We saw no colour bands on the Whooping Cranes. The two birds circled in the air several times as the aircraft circled.

On 8 May a Whooping Crane was found on a nest (nest 21/88) on the same islet as in 1987. A second bird was seen 100 m south of the nest. As we circled the nest in order to plot its location on an airphoto, the crane got up from its nest and walked slowly into the woods east of the nest pond in exactly the same way as in 1987. There were two differently coloured eggs in the nest, one green and the other brown. Whooping Crane eggs when observed from the survey aircraft usually appear greenish in colour, and the light olive-green to buffy-green base colour with numerous brown or purplish-brown blotches can only be seen at closer range. There is considerable variation in egg colour: some are dark olive-brown eggs and in two cases (same pair in consecutive years) eggs were nearly white. In all cases where differently coloured eggs occurred in the same nest, there was never any doubt that both eggs were Whooping Crane eggs. Field reports for 1984 and 1987 do not make mention of differently coloured eggs in nests 26/84 and 27/87.

On 10 May 1988 we circled nest 21/88 to determine if the birds at the nest were banded. The incubating bird refused to rise and we saw no bands on the second bird nearby. On 16 May the incubating bird did not leave the nest as we approached. Its behaviour now was similar to that of other nesting cranes and I decided to include nest 21/88 in the nests earmarked for removal of surplus eggs.

When I approached the small nest island during the egg pickup on 27 May I noted a clutch of three eggs in the nest (Fig. 1), two eggs of normal greenish colour, the third egg a glossy light-brown colour. My 1988 report on egg removal states the brown egg resembled that of a Sandhill Crane. All three eggs were tested in the field, were alive and were judged to be between 15



Whooping Cranes

Lorne Scott

and 22 days old. Whooping Crane eggs in this category when suspended in water, have the air-cell end of the egg just touching the water surface or protruding slightly above it. One of the two green eggs was the youngest egg in the clutch and the other two eggs were approximately the same age. The older of the two green eggs was left in the nest. Measurements of the collected green and brown eggs (length, width, weight) were respectively 102 mm, 62 mm, 198 g and 96 mm, 61 mm, 169 g. One live Whooping Crane egg removed from nest 18/88 in 1988 was smaller in all three measurements than the egg we believed to be a Sandhill Crane egg. The second egg in nest 18/88 was thinner and weighed less than the Sandhill Crane egg but all other Whooping Crane egg measurements in 1988 were greater than those of the Sandhill Crane egg.

Both eggs, shipped to the Patuxent Research Center, U.S. Fish and Wildlife

Service, Laurel, Maryland, hatched, the brown egg on 5 June, the green one on 8 June (Dave Ellis, pers. comm.). Dave Ellis also confirmed that the chick that hatched from the brown egg was a Sandhill Crane.

Discussion

The younger of the two Whooping Crane eggs from nest 21/88 which was shipped to the Patuxent Research Center, hatched there on 8 June and consequently was laid on or about 9 May. The Sandhill Crane from nest 21/88 hatched at Patuxent on 5 June and, with a 21-30 day incubation period, would have been laid on or about 6 May.¹⁰ Whooping Crane eggs are usually laid two days apart and although the hatching date of the egg left in nest 21/88 is not known, hatching would have occurred on or about 6 June and the Whooping Crane eggs likely were laid on 7 and 9 May.

The most plausible scenario leading up to the mixed clutch of eggs suggests

at the Sandhill Crane laid her egg on May during the Whooping Crane pair's absence. When the Whooping Crane female went to the nest to lay her egg, she and her mate could easily have driven off the Sandhill Crane, reoccupied the nest and continued the normal defense of the nesting territory. Whooping Cranes introduced in Grays Lake, Idaho, frequently have been observed driving off Greater Sandhill Cranes and there seems to be no reason why the smaller Sandhill Crane subspecies in WBNP could not also be victimized by Whooping Cranes.

It does not take Whooping Cranes long to begin egg laying after the completion of spring migration. On 5 May 1988 I observed family 21/87 (including its colour banded juvenile, then about 11 months old) near the Sass river about 12 km east of its previous year's nest. Three days later the adults had an egg in a nest in the same small nest pond where they have nested each year since 1984. In this short interval, the cranes completed their migration, spent some time near the Sass river, flew to their breeding territory, prepared the nest and produced an egg. It is therefore quite possible that the pair of Whooping Cranes we observed east of Whale Lake on 5 May 1988 could have had a completed nest and an egg on 8 May.

It is also possible, but less likely, that the Whooping Crane egg was the first in the nest and that that crane temporarily left the nest area allowing the Sandhill Crane to move in and lay an egg. In my experience, Whooping Cranes almost never leave their nest and egg(s) for long and, with both adults alternating incubation duties, one bird is always on or at the nest. Walkinshaw's reports on the attentiveness of cranes at nests.¹ It is not known if young, inexperienced cranes are less attentive than older birds at nests, but in view of an observed lower hatching

success at nests of first-time breeding Whooping Cranes (Ernie Kuyt, unpubl. data), I consider this a possibility. Numbers of Whooping Cranes in the WBNP population have increased in recent years.⁷ We do not have population data for Sandhill Cranes in the area, but if the latter bird's population increased or remained the same, the potential number of interactions between the two species would increase. Each spring since 1981 single Sandhill Crane nests (two nests in 1983) were found fortuitously during aerial surveys for Whooping Cranes. Sandhill Cranes in WBNP, feeding or on nests are more difficult to sight than Whooping Cranes, and Sandhill Cranes no doubt are more common than our records indicate. Although both species will nest in similar habitat there is a greater proclivity for Sandhill Cranes to nest on small natural islets or hummocks in shallow ponds, and their nests, when viewed from the air contain smaller amounts of nest material than the often bulky nests of Whooping Cranes. Of nine Sandhill Cranes nests found since 1981 during Whooping Crane breeding pair surveys, one nest was found as close as 350 m from the nest of a second-time nesting pair of Whooping Cranes. None of the other eight nests were closer than 750 m to the nearest Whooping Crane nest.

The two species may approach each other closely during the nonbreeding portion of their stay in WBNP: we have observed subadult Whooping Cranes feeding with Sandhill Cranes on a few occasions and during banding in 1987, Jonathan Kuyt carrying a just captured Whooping Crane chick to the helicopter, flushed a flightless juvenile Sandhill Crane from a small hummocky island. That chick (also captured and banded) was close to attaining flight as judged by the development of primaries and much closer to flight stage than the Whooping Crane chick captured nearby.

Three-egg clutches in Whooping Cranes are exceedingly rare and only three clutches in 406 observed nests between 1966 and 1988 contained three eggs each.¹ None of the nine eggs hatched and the only hatching success of one or more eggs in a three-egg Whooping Crane clutch is mentioned by Bradshaw from a marsh near the village of Plenty, Saskatchewan in what may have been the last nest recorded in Saskatchewan.²

Blue Goose dump nests and nest parasitism involving Blue Geese and other birds are not uncommon in the vicinity of dense nesting colonies in arctic areas, particularly in late seasons with delayed snow melt.⁹ It is unlikely that any of the chicks hatched from foreign eggs in nests involving interspecific nest parasitism as described by Prevett would have survived for long.⁹ In the case of Sandhill-Whooping Crane mixed clutches, chances of survival of these closely related species would be greater than in the above arctic examples. The present record indicates that Whooping Cranes are capable of incubating a three-egg clutch of eggs without loss up to the third week in incubation. I consider it likely that all three eggs would eventually have hatched if left undisturbed. Survival to flight stage of all three chicks would have been considerably less certain.

Acknowledgements

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¹ BENT, A.C. 1927. Life histories of North American marsh birds. United States National Museum Bulletin 135 (Dover Reprint 1963). 392 pp.

- ² BRADSHAW, F. 1956. The home of the whooping crane. *Blue Jay* 14(3):76-78.
- ³ KUYT, E. 1976. Recent clutch size data for whooping cranes, including a three-egg clutch. *Blue Jay* 34(2):82-83.
- ⁴ KUYT, E. 1976. Whooping Cranes: The long road back. *Nature Canada* 5(2):2-9.
- ⁵ KUYT, E. 1979. Banding of juvenile whooping cranes and discovery of the summer habitat used by nonbreeders. Pp. 109-111. *Proceedings 1978 Crane Workshop*, Rockport, Texas. Edited by J.C. Lewis. Colorado State University Printing Service.
- ⁶ KUYT, E. 1981. Clutch size, hatching success and survival of whooping crane chicks, Wood Buffalo National Park, Canada. Pp. 126-127. *in Proceedings International Crane Symposium*, Sapporo, Japan. Edited by J.C. Lewis and H. Masatomi. International Crane Foundation, Baraboo, Wisconsin.
- ⁷ KUYT, E. 1988. Whooping Cranes in 1987: another year of progress. *Blue Jay* 46(3):136-138.
- ⁸ KUYT, E. and J.P. GOOSSEN 1987. Survival, age composition, sex ratio and age at first breeding of Whooping Cranes in Wood Buffalo National Park, Canada. Pp. 230-244. *Proceedings 1985 Crane Workshop*, Grand Island, Nebraska. Edited by J.C. Lewis. Plat River Whooping Crane Maintenance Trust, Grand Island, Nebraska.
- ⁹ PREVETT, J.P., B.C. LIEFF and C.D. MACINNIS 1972. Nest parasitism at McConne River, NWT. *Can. Field-Nat.* 86(4):369-371.
- ¹⁰ WALKINSHAW, L.H. 1949. The Sandhill Cranes. Bulletin No. 29. Cranbrook Institute of Science, Bloomfield Hills, Michigan. 20 pp.
- ¹¹ WALKINSHAW, L.H. 1965. Attentiveness of cranes at their nests. *Auk* 82:465-476.

SCISSOR-TAILED FLYCATCHER NEAR SYDNEY, MANITOBA

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Scissor-tailed Flycatcher near Sydney, Manitoba, July 1987

Jean Horton

On 20 July 1987 a Scissor-tailed Flycatcher was observed by Betty and John Handysides at their farm located 15 miles south of Sydney, Manitoba on Highway 352. This bird was seen frequently near cottonwood trees and seemed particularly attracted to a large water feature near the farm home where it was observed from a distance of only 10 feet. On several occasions the Handysides noted that the bird fearlessly attacked crows in the yard and was generally seen in association with Western Kingbirds. They noted that the bird was always seen in the early part of the day and rarely in the evenings.

On 25 July 1987, the Handysides related their sighting to Bob and Rae Anderson of Carberry who contacted

Brandon's Rare Bird Alert. Consequently, on 26 July this Scissor-tailed Flycatcher was seen by Bob and Rae Anderson, Cliff Findlay, Jean Horton, Hazel Patmore and Donna and Norman Short. It was usually with Western Kingbirds and was seen clearly perched on fenceposts and hydro wires on the Handyside farm. Light conditions at the time were excellent with full sun and a clear sky — providing excellent visibility. It was noted that the extremely long forked tail was usually spread open in flight. The upper parts of the bird were observed to be a grey color and the underparts were white with some pink on the sides. Short and Horton observed a reddish patch under the wing when the bird was in flight and both obtained photographs of the bird.

The flycatcher was not seen again until about one week later when the Handysides observed it in a pasture about 0.5 mi. east of the farm house; this was the last recorded sighting.

Twelve other Manitoba records of Scissor-tailed Flycatchers exist for the period 1880 to October 1953.² More recent sightings include the following: an immature bird 18 August 1979 by Peter Taylor, 13 km northwest of Whitemouth, Manitoba; one 26 May 1980 by Sharon Howe at Pinawa, Manitoba; one 5 June 1982 by Dennis Fast north of Oak Hammock Marsh; and one 11 May 1985 by the Gordon Grief family at Grand Beach Provincial Park

(P. Taylor and H. Copland, pers. comm.).^{3 4 1}

¹ HATCH, DAVID 1982. Chick Notes. Winnipeg Free Press, 30 Jul

² LAWRENCE, A.G. n.d. Chick Notes. Winnipeg Free Press (supplied from records of Herb Copland, Manitoba Museum of Man and Nature).

³ TAYLOR, PETER 1979. Scissor-tailed Flycatcher near Whitemouth, Manitoba. *Blue Jay* 37(4):228.

⁴ TAYLOR, PETER 1984. Wings and the Winnipeg. Manitoba Natural Society, Eco Series No.2

UNUSUAL VARIATIONS IN PLUMAGE OF THE HOUSE SPARROW

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Since its deliberate introduction into North America during the 19th century, the (originally) European House Sparrow has not only spread widely -- more widely, indeed, than many of us would wish -- but also shown so rapid a degree of plumage variation that at least one, perhaps several North American subspecies may already be recognized.

Many individual variations have been reported, including albinistic and melanistic individuals. To the list of variations I should like to add two more, both among the mob of birds on the University of Saskatchewan campus

during late March and early April 1984, and both males.

The cap of the male House Sparrow is normally grey. In one individual, however, the colour of the whole forehead, crown and nape was blue, almost cerulean blue. Otherwise his plumage was standard.

The second differed from the usual pattern in a very odd fashion. It was as if a line of colour demarcation had been drawn across the back, just below (or not at) the base of the mantle. The whole middle and lower part of the back and the rump were of a very pale fawn colour. The tail, however, was quite normal.

I should stress that both birds were seen repeatedly, always in the area between the Thorvaldson Building and the Murray Memorial Library. When the mob of sparrows of which they were a part left the campus, they departed

STATUS OF THE SWIFT FOX IN SASKATCHEWAN

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The Swift Fox is the smallest wild canid in North America. Though the Swift Fox is well adapted to prairie environments, few Saskatchewan residents have seen this predator. There are, however, still some old-time residents who can remember seeing or hearing about what was then called the "Kit Fox." (George Scotter, pers. comm.). The present Kit Fox is a closely related species which occurs in the southern United States and northern Mexico.

Fur records are one way in which the past abundance of fur-bearing animals can be measured. Hudson's Bay Company records show that between 1853 and 1877 an average of 4,876 Swift Fox pelts were marketed per year.¹ Commercial trapping continued into the early 1900s. By 1925 an average of only 8 foxes per year were sold from the Canadian prairie provinces (Statistics Canada number 23207).⁴ After 1925, the number of Swift Fox pelts sold in Canada was so small that separate records for this species were no longer kept.

Fur records can be misleading since it is not always possible to determine exact location of origin; however, in the absence of other data, such records do provide background statistics to population changes.

A major problem with Canadian fur records is that historically, American furs have sent fur north into the Canadian markets. This practice continues today.

The IUCN (International Union for the Conservation of Nature) Red Data Book in 1986 listed the Swift Fox as "probably extinct" in the Canadian portion of its range. In 1978 the Committee on the Status of Endangered Wildlife in Canada (COSEWIC 1978) classified the Swift Fox as "extirpated." The term applies to any species of fauna or flora no longer existing in the wild in Canada, but existing elsewhere. Official designation was assigned to the species 50 years after the last known specimens of foxes in Saskatchewan were collected from Ravenscrag in 1927 and Govenlock in 1928.¹ Other isolated reports of Swift Foxes in Saskatchewan were made in 1969, 1971 and 1972 but none of these were confirmed.⁷

South of Saskatchewan, in North Dakota and Montana, a few sightings have been reported within the last 20 years. The presence of a fox in southwestern North Dakota was documented in 1978. A male was trapped in Custer County, southeastern Montana.¹⁰ More recently (1984) a single male was trapped in Dawson County, eastern Montana (K. Walcheck, pers. comm.).

The idea of reintroducing the Swift Fox into its original environment began with Beryl and Miles Smeeton. In 1973 they imported the first two foxes from the United States and held them in captivity at their wildlife reserve near Cochrane, Alberta. The following year, this pair had their first litter (Smeeton, pers. comm.). In 1983 and 1984 releases took place in Alberta and Saskatchewan, respectively, using the "soft

release" technique.¹³ In October 1987 the first "hard releases" took place in both Alberta and Saskatchewan. Definition of soft and hard release techniques are given in the Methods Section.

This paper summarizes information on the fox releases from 1984 to 1989 in Saskatchewan. We discuss the potential impact that cattle management practices may have on Swift Fox habitat by comparing one situation in Saskatchewan with another in Alberta; the two areas are separated by about 80 km. Since the ultimate survival of Swift Foxes may well depend on habitat (both native and non-native) a brief discussion here should stimulate further

debate on the subject. Success of Alberta release program is not dealt with here but will be available (Herr et al., in prep.).

Release Site

The Nashlyn Community Pasture forming part of the PFRA (Prairie Farm Rehabilitation Administration) complex was selected as a suitable release site for the Saskatchewan project.¹² The community pastures cover 81,034 hectares in the southwestern corner of the province; Nashlyn contains 24,800 hectares of this area. To the east Nashlyn pasture borders the Battle Creek pasture (28,297 hectares) and to the west the Govenlock pasture (27,800 hectares).

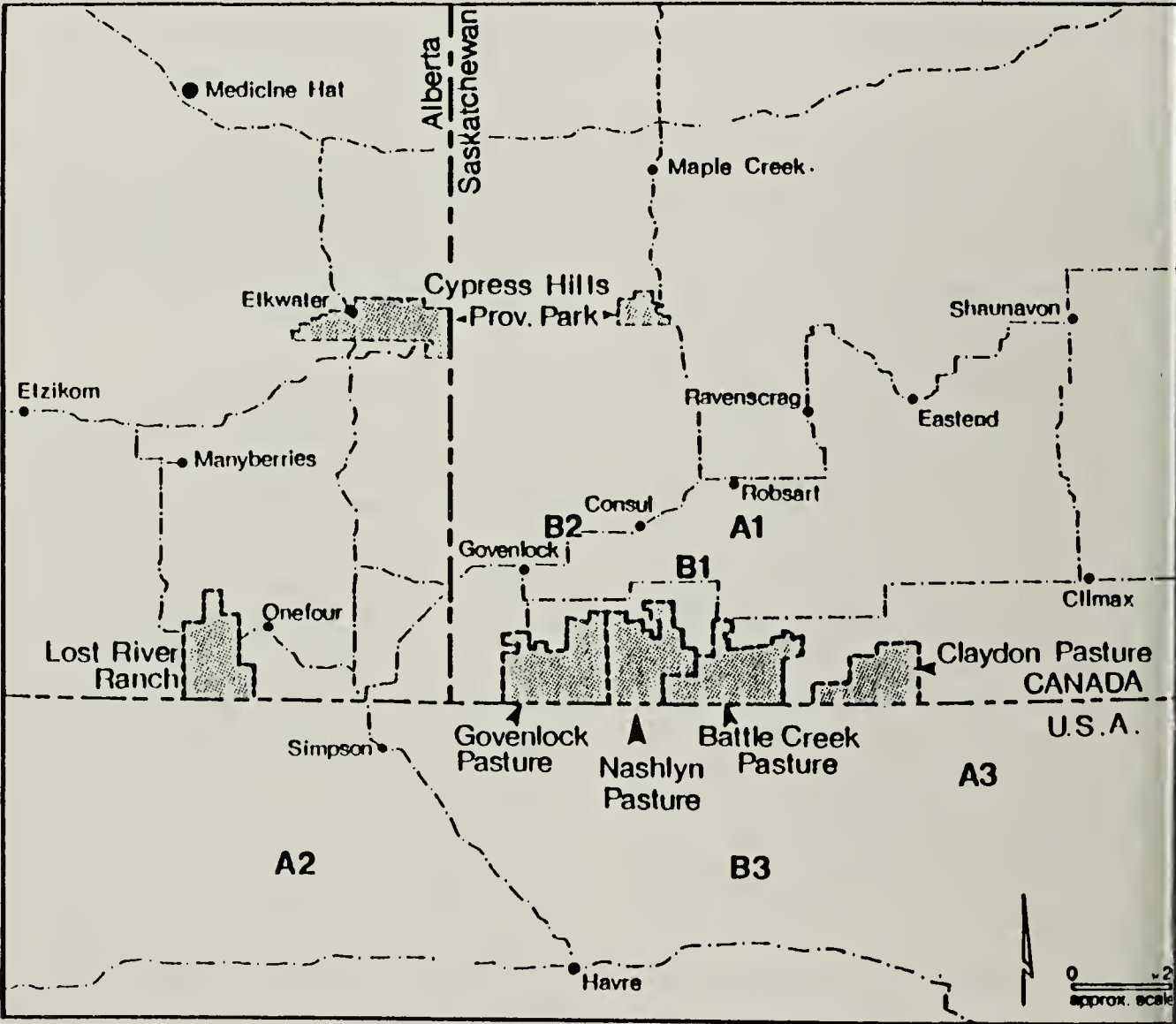


Figure 1. Locations of Swift Fox release sites in Alberta (Lost River Ranch) and Saskatchewan (Nashlyn) showing areas of known sightings (A series) and highly suspected sightings (B series) in Saskatchewan and Montana from 1984 to 1989 (results of soft release program).

ares) (Fig. 1). The Lost River Ranch
udes 22,792 hectares along the
River in southeastern Alberta.

e Nashlyn pasture is a flat to rolling
with mixed grassland vegetation,
sected by coulees from Woodpile
Battle creeks. Dugouts and dams
ide sources of water for cattle that
e on the pasture from about 1 May
November. Approximately 8% of
Nashlyn pasture has been cultivated
seeded with Crested Wheatgrass
Russian Wild Rye (Weins, pers.
m.).

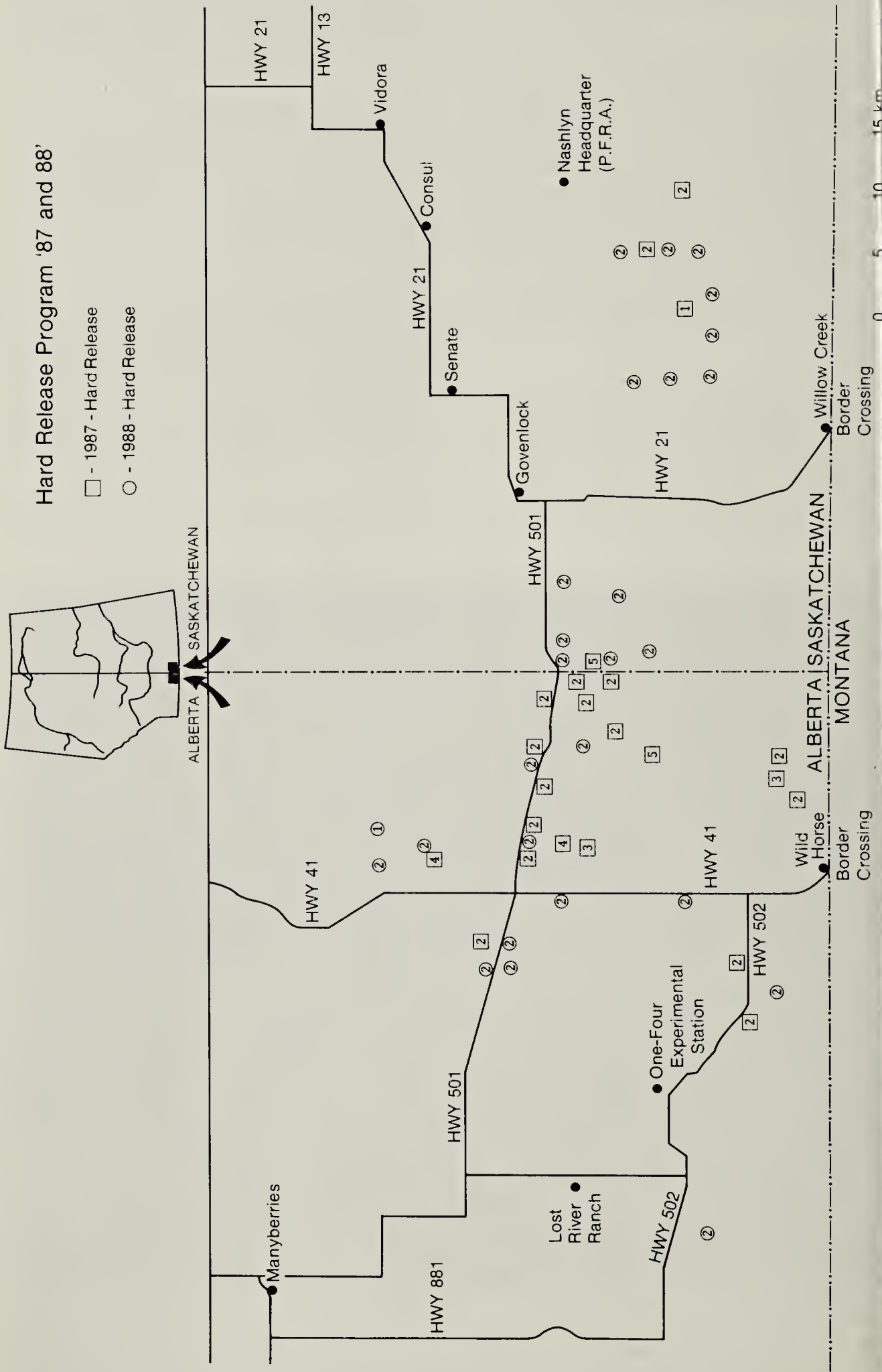
the fall of 1987, 389 hectares (960
s) of native prairie were cultivated
eeding in 1988. Cattle management
tices call for approximately 10% of
under cultivation in order to pro-

vide early spring forage (R. Moorehead,
pers. comm.). Crested Wheatgrass in
particular, is an important forage
species. Because of rapid growth in
April/May, it makes excellent spring
grazing for cattle. It can be grazed
heavily until mid-June without injuring
the stand or reducing its long-time
yielding capacity. Once established it
persists, even after the eventual rein-
vasion of native plants.

Native grasslands are characterized
by a dominance of Blue Grama Grass
and Spear Grass. Ground lichens are
common. Various forbs and low bushes
(mostly sage brush) occur in patches but
are common. Temporary sloughs in flat,
poorly drained areas are dispersed
throughout. Flood plains contain a
variety of forbs and shrubs such as



Fig. 2. Satellite view of the mixed grass prairie areas along the Alberta/Saskatchewan/Manitoba border area. The picture clearly shows the challenges ahead for Canada to retain original grassland habitats. (Landsat Image courtesy of CCRS, Energy, Mines and Resources, Ottawa).



0 5 10 15 km

ary Sagebrush, Western Snowberry,
e, willow and Wolf Willow.

mix of native prairie and cultivated
land is found beyond the pasture
boundaries to the north and south,
the native grasslands extend both
east and west. The Canadian/U.S. bor-
der is clearly defined by intensive
agriculture south of the border (Fig. 2).
Nashlyn community pasture is quite
large. The nearest town, Consul, is
located 10 km north of the Nashlyn
pasture.

The Lost River Ranch area contains
mostly native prairie and is further sur-
rounded by extensive areas of native
grasses. These extend to the Alber-
ta-Saskatchewan border, the core area
where hard releases carried out in 1987
and 1988 (Fig. 3).

Methods

Swift Foxes for release were obtained
from three institutions, the Calgary Zoo,
the Jaw Wild Animals Park and
the Wildlife Reserve of Western Canada.
For soft release, some foxes in both
release strategies were fitted with radio-
collars and their subsequent move-
ments monitored, either from the
ground, or from the air. Spotlighting was
conducted 4 - 9 December 1986 and 26
January 1987.

The "soft" release strategy was used
initially.⁴ This entailed building field
pens (12'x 24'), transporting a pair of
foxes to each pen in December and
keeping the animals over the winter to
be released the following summer or
autumn. Through this method the foxes be-
came accustomed to the site, with the
expectation that often the release animals
would remain in the area. Unlike the Al-
berta releases, Saskatchewan animals in
the soft release program were not fed
while the pens were opened. This release
process has also been referred to as the
"semi-hard" release technique. In Sask-

atchewan, foxes were placed in pens in
1983; 1985 and 1986; they were
released in 1984, 1985, 1986 and
1987.

"Hard" releases involve taking
animals into the field and releasing
them directly into their new environ-
ment. These releases were initiated by
the Canadian Wildlife Service and car-
ried out in 1987 and in 1988.

Information on the local cattle in-
dustry was obtained from the manager
of Nashlyn community pasture and the
owner of the Lost River Ranch. The prac-
tices may vary from year to year, but the
general current trends are discussed.

Results

1. Releases

Seventy-seven foxes were released in
southwestern Saskatchewan from 1983
to 1988; 39 of these were by the soft
release and 38 by the hard release
(Table 1). A total of 22 of the 39 in the
soft release and 9 of the 38 in the hard
release were radio-collared.

Free-ranging Swift Foxes have been
sighted by the Nashlyn Pasture staff (R.
Moorehead and L. Flaig, pers. comm.).
As well, track observations were noted
by R. Moorehead in the winters of
1985-86 and 1986-87 while caring for
captive foxes. Late winter track surveys
in 1988-89 showed no evidence of
foxes in the area (C. Mamo, pers.
comm.) but R. Moorehead reported a
sighting for the summer of 1989.

D. Dobson, (Saskatchewan Parks,
Recreation and Culture, SPRC) has
received about 14, unconfirmed,
firsthand and second hand reports of
Swift Fox sightings from residents
within the Consul area. Most sightings
occurred at night and in areas with
mixed agricultural land use.

Table 1. SUMMARY OF SWIFT FOX SOFT RELEASES IN SASKATCHEWAN FROM JULY 1984 TO JULY 1987 AND HARD RELEASES IN OCTOBER 1987, AND SEPTEMBER 1988.

| <i>Date and number transferred</i> | | <i>Number of offspring</i> | <i>Number collared</i> | <i>Date of release (total number)</i> |
|------------------------------------|----|----------------------------|------------------------|---------------------------------------|
| Soft Release | | | | |
| December 1984 | 10 | 7 survived | 10 | 18 July 84 (17) |
| March 1985 | 2 | - | 2 | 25 March 85 (2) |
| December 1985 | 8 | 2 (did not survive) | 4 | June 86 (8) |
| December 1986 | 10 | 2 survived | 6 | late April 87 |
| | | | | escaped (2) |
| Total | 30 | 9 | 22 | 23 June 87 (8) |
| | | | | 14 July 87 (2) |
| Hard Release | | | | |
| October 1987 | 10 | Not applicable | 3 | 5/6 October 87 (10) |
| September 1988 | 28 | Not applicable | 6 | 16-18 September 88 |
| Total | 38 | | 9 | |

On 8 January 1986 a fox was struck by a vehicle and killed on Highway #13 near Robsart (Fig. 1 - A1). A possible den site was reported in the fall and winter of 1985 approximately 10 km northeast of the Nashlyn PFRA Headquarters (Fig. 1 - B1). The farmer in question had made a number of fox sightings in one general location. A den site was reported in April 1987 in an area of mixed agricultural use 16 km west of Consul (Fig. 1 - B2).

An open, mild fall greatly aided the establishment of foxes during the first hard release in October 1987. Availability of grasshoppers provided suitable food and possibly minimized dispersal of released foxes. In the spring of 1988, due to the mild winter, overwintering success was excellent. Tracks were seen and sightings of foxes occurred at several locations south and west of Consul. At least two litters were seen. One breeding pair was found 10 km west of Consul. The male of this pair had moved about 50 km to that location and mated with an unknown female. A second breeding pair was found south of the old townsite of Govenlock. This pair produced a record seven pups.

Reports of fox sightings have come from northern Montana. A resident of Chinook, Art Burns, reported that he and his wife had seen a Swift Fox along a road 16 km south of the Saskatchewan border near Hogeland, Montana in the late summer of 1986 (Fig. 1 - A3). Their description of the animal strongly fits that of a Swift Fox and is not likely to have been a Red Fox. A collar was not observed.

Burns also stated that a part-time trapper had trapped a radio-collared Swift Fox in the fall of 1986. Because the trapper feared prosecution, he disposed of the radio collar and animal. When asked to confirm his trapping of a Swift Fox, the individual denied the allegation. He did say, however, that he had heard of one or two Swift Foxes being sent to Pacific Hide and Fur Company, Havre, Montana. Pacific Hide and Fur stated that they had only one Swift Fox presented to them in 1985-86, having been caught by a Hutterite boy near Gilford, Montana near Sage Creek (Fig. 1 - A2) and further, Pacific Hide and Fur had heard of another report of a Swift Fox being caught north of Chinook, Montana.

Another report of free-ranging Swift foxes was given to Bob Plaster, Conservation officer, Cypress Hills Provincial Park. Supposedly, a 1986 big game hunter had shot two uncollared Swift foxes, not knowing what they were, nor was he aware of their protected status. Follow-up investigators could neither confirm nor deny this report.

Within the Nashlyn Pasture, numerous dens were found, with tracks and signs indicating they clearly were Swift Fox origin (probably taken over from other mammals). On 10 May 1986, a male radio-collared fox (released March 1985) was seen at a den which could have been a natal den, judging from extensive signs around the entrance. The following year, on 28 April, two dens were found within the pasture. One den was definitely occupied by foxes (likely a pair) while the second den may have contained a pair, though only one fox was seen at the entrance. All these observations did show that foxes could survive some winters in the area and that pups were born to free-ranging foxes.

In addition to the above, an unmarked fox was captured and collared on 25 February 1986. The animal weighed 2.1

kg and differed somewhat in physical appearance from captive, released animals (see Discussion).

Summer food shortages may occur in some areas during years of drought. Of the first release (17 foxes) three were found dead within three 3 weeks of the release. The initial prognosis was that the animals succumbed to heat stress/exhaustion and starvation.¹³ To supplement losses, in March 1985, two additional males were transported from the Wildlife Reserve in Cochrane and released in Nashlyn.³ Of these two, one was confirmed dead and the second was located at a den on 10 May 1986. The second male survived the winter without supplemental feeding. Winter tracking in 1986/87 (prior to the 1987 releases) suggested that between four and six foxes were present in the area. An automatic photographic device and trapping revealed that at least two of the free roaming foxes were not radio-collared (Fig. 4). One fox was located on the nights of 4 and 7 December 1986 by spotlighting (R. Laing, pers. comm.).

II. Differences in agricultural practices

A comparison of two areas with different farming practices is summarized (Table 2). The main difference is that in

Table 2. COMPARISON OF DIFFERENT LAND MANAGEMENT PRACTICES BETWEEN LOST RIVER RANCH, ALBERTA AND NASHLYN COMMUNITY PASTURE, SASKATCHEWAN.

| | <i>Lost River Ranch</i> | <i>Nashlyn</i> |
|-------------|---|---|
| | approx. 80 sections (22,792 ha) | approx. 97 sections (24,897 ha) |
| Topography | Rolling topography - major coulees | Flat, slightly undulating, some shallow coulees |
| Use of land | cattle - 1,050 animal units free ranging 600 cows year round; 600 - 1200 calves/ yearlings with supplemental feeding in winter and not free ranging | cattle - 1,700 animal units fairly intensive summer grazing (1 May to November) carrying capacity increased with the presence of seeded areas |

1 calf = 1 animal unit; 1 yearling = .75 animal unit

the Lost River Ranch operation the cattle graze only on native vegetation. Because of this, stocking rates are lower. On average 600 cows remain year round on the range and in winter receive some protein supplements (blocks) and mineral blocks (L. Pietrowski, pers. comm). In addition 600 calves and 600 yearlings are fed hay and supplements from 1 November to the end of April. Grazing in the Nashlyn operation is more intensive over a shorter period extending from around the first week of May to about the last week of October (see details in Table 2).

Discussion

(1) Releases

Up to the spring of 1987 the success ratio of surviving animals (and possibly their offspring), to the number released during the soft release (i.e. semi-hard) program was established at 6:27 or 22%. This does not include a figure on the hard release. Preliminary results indicated higher survivorship in the hard

release during the first year, probably due in part to a mild winter with ready access to grasshoppers into late fall. The winter of 1987/88 was one of the mildest on record since 1889 (Environment Canada).

Population dynamics and mortality of wild Swift Foxes is poorly documented in those areas where they are still abundant. For Red Foxes, it is reported that juvenile mortalities were at least 60% in the first year.¹⁵ We can assume that Swift Foxes experience similar high rates of mortality.

The unmarked fox that was captured in February 1986 could have been the offspring of the 1984 or 1985 release in Saskatchewan or an animal that moved into the area from the Alberta releases. Other possibilities are that the fox moved into the area from southern established populations or had been in the area for some time as a member of a small established population. On f

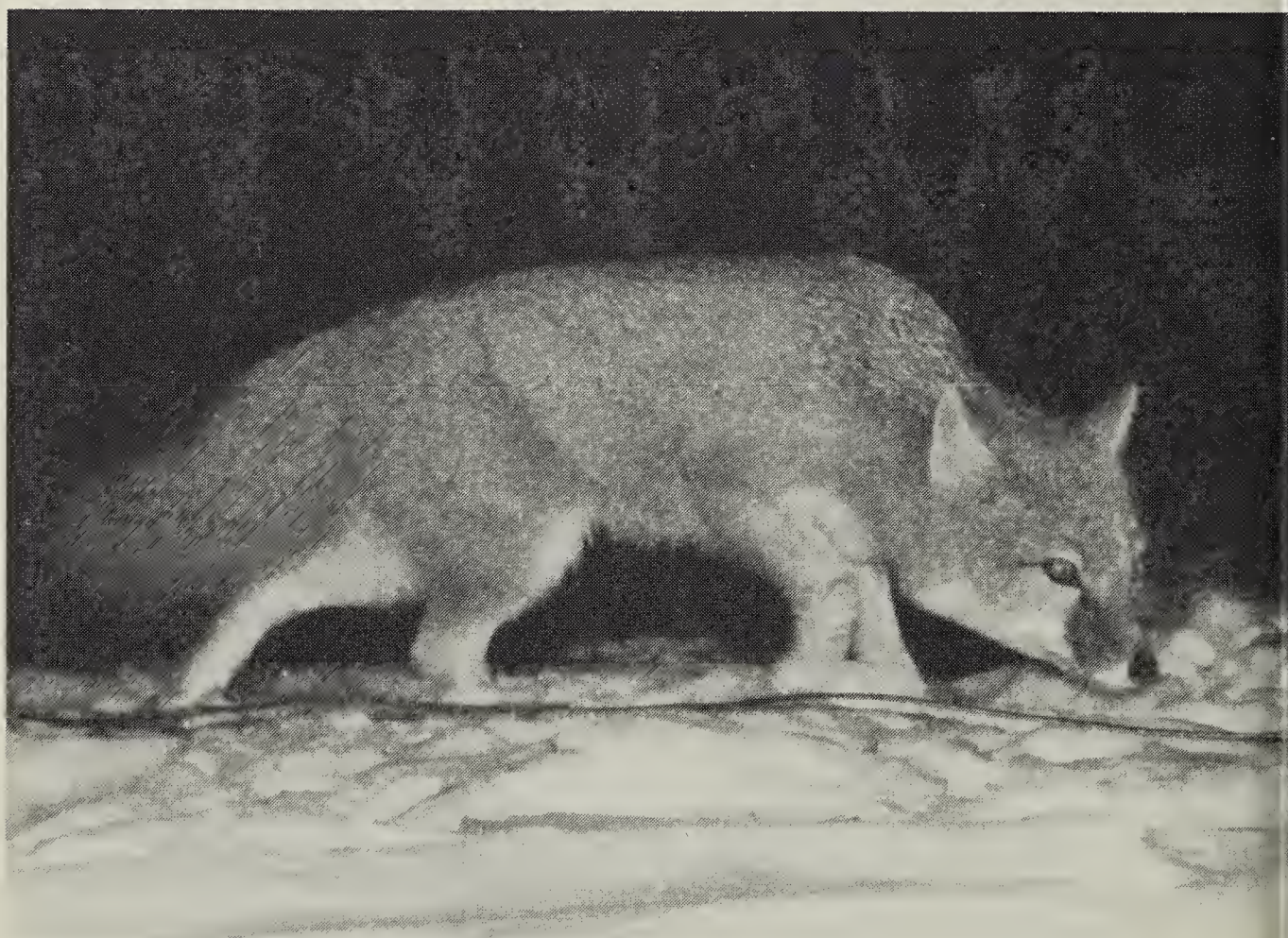




Figure 4. Sequence of photographs taken with an automatic camera device attached to a micro-computer that synchronized flash with shutter. Note approach of the fox to the bait tied to the end of a cord (keeps the animal in focus). These are the first photos of a free-roaming Swift Fox in Saskatchewan (taken in February 1986), since the demise of the species about 30-50 years ago. (Photos reproduced with permission of Alberta Naturalist).

L.N. Carbyn

examination, the overall appearance of that animal differed from those raised in captivity. The animal was shorter and appeared more robust and had a thick coat of fur which was greyer in colour than those of the released animals. However, even in captivity physical appearance can range widely (P. Rhodes, pers. comm.).

(2) Potential impact of cattle grazing on Swift Fox habitat

Cattle have replaced Bison in the prairie ecosystem. Physical evidence of the historical presence of Bison can still be found at both Saskatchewan and Alberta locations. Wolves are known to have frequented the area in the 19th century. Wolves were important predators of Bison. With the loss of Bison, wolf predation on cattle and sheep could not be tolerated, and, therefore two important elements (Bison and Wolves) in the prairie ecosystem were lost once Europeans settled there. An entry in the museum at Eastend notes that "the greatest pest of the ranching days was the Timber Wolf. A photo, showing wolves killed by ranchers, was taken at the Eastend post office in 1908. During the two years 1908 to 1909 bounty was paid from the Eastend post office on 76 Timber Wolves, all caught between Farwell Creek and the South Fork." The presence of both Bison and Wolves would have been of some benefit for Swift Foxes if carrion were available in winter. Bison, however, were known to have moved generally out of the prairies in winter and herds sought more sheltered wooded areas. Therefore, the Bison - Swift Fox relationship may well not have been as simple as it appears at first glance.

Wolves kill coyotes.² Coyotes in turn kill Swift Foxes. Predation by Coyotes on foxes has proven to be a major factor in Swift Fox mortality at the release site in Alberta (C. Mamo, pers. comm.).

Grazing and the use of pesticides be important to the survival of Swift Foxes. For example, the effects of grazing by livestock (or Bison) on Swift Foxes is poorly understood. In pristine conditions grazing by Bison was likely intensive in some areas and light, if absent in others. Movements of Bison from grazed to ungrazed areas therefore, allowed for carryover of grazing and a patchy environment.

The presence of grazing ungulates may affect foxes in two ways. First, it is believed that both Swift and Kit Foxes thrive best in areas with unobstructed views (Fitzgerald, pers. comm.); grazing would appear to be beneficial as it does not influence availability of prey. For example, areas with high Swift Fox numbers in parts of its current range in the United States are heavily grazed (C. Mamo, pers. comm., and pers. observations). In contrast, lagomorph rodent density may be negatively affected by heavy grazing. We believe the presence of rodents to be vital in the winter ecology of northern Swift Foxes. It has been suggested that since granivorous rodents depend on stored seeds, removal of livestock could increase species dependent on these resources.⁹ Heavy grazing could shift availability of some prey species over to others. For example, Richardson's Ground Squirrels are diurnal while Deer Mice are nocturnal. Since Swift Foxes tend to be nocturnal, grazing would be detrimental to them if such events favour diurnal species. Hungry foxes, undoubtedly will then hunt whenever prey becomes available and it then becomes a question of when Swift Foxes are themselves vulnerable to predation.

Swift Foxes are opportunistic omnivores and are capable of taking advantage of a variety of prey sources. Diversity provides added insurance against an over-reliance on one species.

particularly in critical, seasonal periods. Foxes feed extensively on invertebrates and therefore chemical control to reduce grasshopper damage could affect fox survival. The magnitude of current chemical use has been reported at an estimated 7 - 8 million litres sprayed for grasshopper control in 1986.⁶

Re-seeding native prairie and seeding with non-native grasses results in short or long-term habitat changes. In the short term, land that has been broken and seeded may not go into production until moisture conditions are not favourable. The seed can lie dormant up to about 6 years before it no longer germinates (L. Pietrowski, pers. comm.). Long-term habitat changes may not be detrimental if, after subsequent plant succession, the prey base benefits. For example, White-tailed rabbits have been seen using irrigated areas at certain times of the year (Moorehead, pers. comm.).

We may ask ourselves "what is the future of Swift Foxes in Saskatchewan?" Initial signs are somewhat encouraging, but we cannot be overly optimistic. Even when the prairie environment may physically resemble those of earlier times, it could be that biological characteristics have drastically changed. For example, winter food may be present in quantity and availability would be important.³ Many rodents also undergo population fluctuations and such cycling may have an important influence on survival of Swift Foxes. We also cannot ignore the timing and sequencing of events. A severe winter would be less detrimental to fox survival if it coincided with high prey cycles. Two mild winters with abundant prey followed by a severe winter may buffer fox declines when compared to a sequence of alternating mild and severe winters. Patchiness and survival in micro-habitat areas may pro-

vide the source for dispersal in years of milder winters to offset losses in severe winters. Finally, we can only speculate about the abundance of the species in the past. Since it is at its northern range, it is not inconceivable that their distribution and abundance fluctuated widely at previous times.

In conclusion, a small nucleus of foxes has been established south-western Saskatchewan and southeastern Alberta. It is too early to be able to predict whether foxes can establish themselves as viable populations in the existing ecosystems. We can speculate about the environmental complexities, but our understanding of links and processes are not complete enough to predict the eventual outcome of our experimental work in the release program.

Acknowledgements

We would like to acknowledge the constructive atmosphere provided to us and the Swift Fox project by PFRA (Prairie Farm Rehabilitation Administration) and their personnel. In particular Richard Moorehead and his wife, Sandy, of Nashlyn, were most helpful. Mary-Jane and Leonard Pietrowski (owners of the Lost River Ranch) provided insights into cattle ranching that were important to us. We gratefully acknowledge support in many ways by G. Aiudi, H. Armbruster, D. Dobson, R. Edwards, J.

Fitzgerald, S. Herrero, D. Hjertaas, G. Holroyd, B. Isaac, J. Ives, C. Mamo, S. Mianka, P. Paquet, P. Rhodes, H. Stelfox and T. Weins. This report was written in preparation for a talk given by L. Carbyn to the Saskatoon Natural History Society meetings held in December 1987. It is a pleasure for us to acknowledge the important work done by Natural History groups in Saskatchewan.

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- ¹ BECK, W.H. 1958. A guide to Saskatchewan mammals. Sask. Nat. Hist. Soc. Spec. Publ. No. 1. 52 pp.
- ² CARBYN, L.N. 1982. Coyote population fluctuations and spatial distribution in relation to wolf territories in Riding Mountain National Park, Manitoba. *Can. Field.-Nat.* 96:176-193.
- ³ CARBYN, L.N. 1986. Some observations on the behaviour of Swift Foxes in reintroduction programs within the Canadian Prairies. *Alberta Naturalist* 16:37-41.
- ⁴ CARLINGTON, B. 1980. Reintroduction of the Swift Fox (*Vulpes velox*) to the Canadian prairies. M.Sc. Univ. of Calgary. 180 pp.
- ⁵ COSEWIC. 1978. Committee on the status of endangered wildlife in Canada. Swift Fox Vol. 1.
- ⁶ JAMES, P.C. and G.A. FOX 1987. Effects of some insecticides on productivity of Burrowing Owls. *Blue Jay* 45:65-71.
- ⁷ LOOMAN, J. 1972. Possible recent Kit Fox record in Saskatchewan. *Blue Jay* 30:136.
- ⁸ MOORE, R.E. and N.S. MARTIN 1980. A recent record of the Swift Fox (*Vulpes velox*) in Montana. *Journal of Mammalogy* 61:161.
- ⁹ O'FARRELL, T.P. 1983. The San Joaquin Kit Fox recovery plan. U.S. Fish and Wildlife Service. Portland, Oregon. 84 pp.
- ¹⁰ PFEIFER, W.K. and E.A. HIBBARD 1970. A recent record of the Swift Fox (*Vulpes velox*) in North Dakota. *Journal of Mammalogy* 51:835.
- ¹¹ RAND, A.L. 1948. Mammals of eastern Rockies and western plain Canada. Nat. Mus. of Canada. 108:1-327.
- ¹² REYNOLDS, J. 1983. Evaluation of potential Swift Fox release area in southwestern Saskatchewan. C. report. 22 pp.
- ¹³ SCOTT-BROWN, J.M. and S. HERRERO 1985. Monitoring of released Swift Foxes in Alberta and Saskatchewan. Progress Report. 62 pp.
- ¹⁴ SCOTT-BROWN, J.M., S. HERRERO and C. MAMO 1986. Monitoring released Swift Foxes in Alberta and Saskatchewan. Unpubl. final report C. 96 pp.
- ¹⁵ STORM, G.L., R.D. ANDREWS, PHILLIPS, R.A. BISHOP, D.B. SIMPSON and J.R. TESTER 1976. Morphology, reproduction, dispersal and mortality of midwestern Red Fox population. *Wildlife Monograph* 49. 82 pp.

FERNAND PERRAULT

In the fall of 1988 Fernand and Perrault were the recipients of Society's Conservation Award. On February 1989 Fernand passed away. Fernand was a rancher for most of his life. He had a lifelong interest in natural history and was known to many people with interests in that field. In 1984 he donated his ranch to become part of Grasslands National Park. He will be sorely missed not only in Val Marie but elsewhere in Saskatchewan.

SASKATCHEWAN CHRISTMAS ANIMAL COUNT - 1988

Compiled by WAYNE C. HARRIS, Box 414, Raymore, Saskatchewan. S0A 3J0

Total of 68 counts were received this year, two less than last year. These counts reported 36 species, only one more than the record number reached in 1986 and 1987.

Only one new species was reported, the Woodchuck found at Gardiner Dam. This sighting is unusual from two perspectives; the first is that this species normally spends the winter underground like the ground squirrels; the second is that the species is not normally found this far south although it may have followed the South Saskatchewan River valley southward.

The most frequently occurring species was the White-tailed Deer with 10 of localities having this species, up from 85% last year. Coyotes were followed by Red Fox, White-tailed Rabbit and Snowshoe Hare. Some less common or more difficult to see species included Masked Shrews at Moose and Sandy Bay, Northern Flying Squirrel from Good Spirit Lake, Carragana and Fisher from Prince Rupert National Park.

For the first time in a number of years a Woodland Caribou was reported, that from Sandy Bay.

Lynx were unreported, continuing their long-term absence from the counts while Racoons were also absent for the first time in several years.

For weather, coverage and participants please refer to the Christmas Bird Counts found elsewhere in this issue. Symbols found in the tables are as follows:

* identified by tracks with estimated numbers in parentheses

+ seen during the count period but not on count day

L active lodges or huts seen with numbers in parentheses

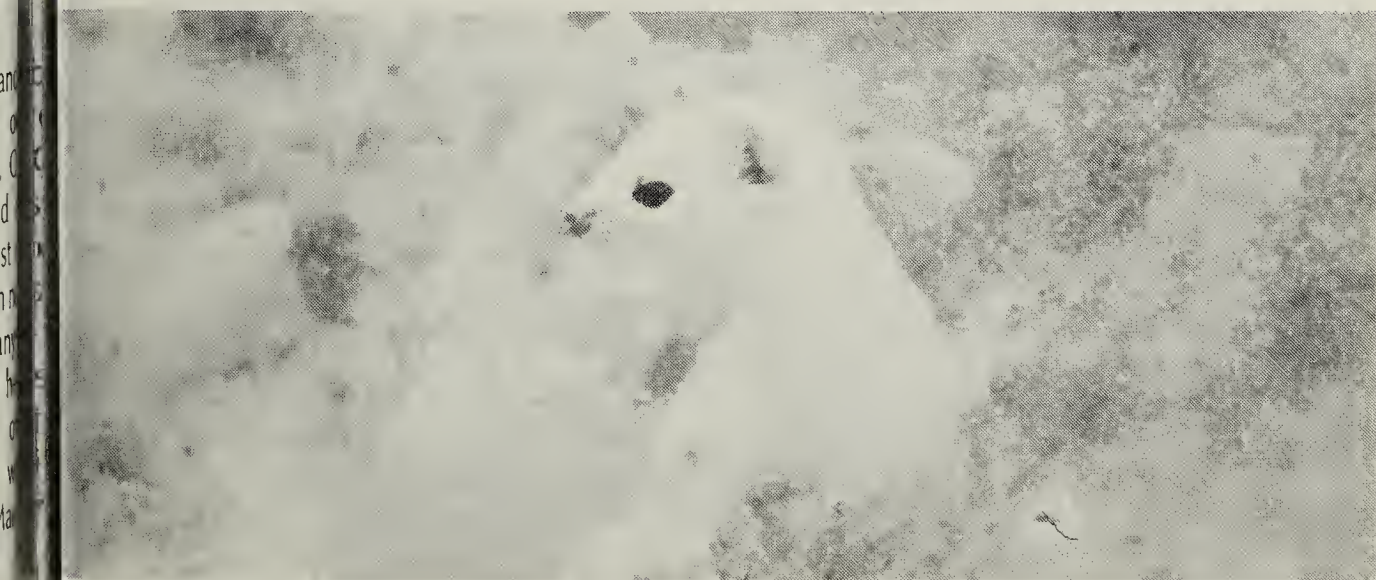
N nests found with numbers in parentheses

D fresh digging seen

d freshly dead animals found

S odour detected

H heard with numbers in parentheses



e Weasel

W.C. Harris

Table 1-1. SASKATCHEWAN CHRISTMAS MAMMAL COUNTS

| SPECIES | LOCALITY & DATE | 1. ABERNETHY-KATEPWA 3 Jan. 1989 | 2. ARCHERWILL 1 Jan. 1989 | 3. ASSINIBOIA 3 Jan. 1989 | 4. BANGOR 26 Dec. 1988 | 7. BIGGAR 28 Dec. 1988 | 8. BIG MUDDY LAKE 29 Dec. 1988 | 9. BIRCH HILLS 23 Dec. 1988 | 10. BROADVIEW 27 Dec. 1988 | 11. BROMHEAD 28 Dec. 1988 | 12. CARRAGANA |
|--------------------------|-----------------|-------------------------------------|------------------------------|------------------------------|---------------------------|---------------------------|-----------------------------------|--------------------------------|-------------------------------|------------------------------|---------------|
| MASKED SHREW | | | | | | | | | | | |
| SHREW SP. | | | | | | | | *(2) | | | |
| NUTTALL'S COTTONTAIL | | | | | | | 9 | | | | |
| SNOWSHOE HARE | + | | 4 | 1 | | | | 1 | *(11) | | |
| WHITE-TAILED JACK RABBIT | | + | 6 | 1 | 1 | d(2) | *(1) | *(1) | 3 | | |
| WOODCHUCK | | | | | | | | | | | |
| RICHARDSON'S G. SQUIRREL | | | | | | | | | | | |
| GREY SQUIRREL | | | | | | | | | | | |
| FOX SQUIRREL | + | | | | | | | | | | |
| RED SQUIRREL | 1 | + | | | | | | 3 | H(2) | | |
| N. FLYING SQUIRREL | | | | | | | | | | | |
| N. POCKET GOPHER | | | | | | | | | | | |
| BEAVER | | | | 1 | | | | 1 | | | |
| DEER MOUSE | | | | 11 | | | | | | | |
| GAPPER'S RED-BACKED VOLE | | | | | | | | | | | |
| MUSKRAT | 1 | | | | | | | 2 | | | |
| MEADOW VOLE | | | | | | | | | | | |
| VOLE SPECIES | | | | | | | | | | *(2) | |
| MOUSE SPECIES | | | | | | *(2) | | *(17) | *(4) | | |
| NORWAY RAT | | | | | | | | | | | |
| HOUSE MOUSE | | | | | | | *(1) | | | | |
| PORCUPINE | | | | 1 | | 2 | *(1) | 1 | | | |
| COYOTE | + | 1 | 2 | *(4) | *(1) | 5 | *(6) | *(3) | 2 | | |
| WOLF | | | | | | | | | | | |
| RED FOX | 1 | | 4 | | *(2) | *(1) | *(3) | | *(3) | | |
| FISHER | | | | | | | | 2 | | | |
| ERMINE | | 1 | | | | | | | *(1) | | |
| LONG-TAILED WEASEL | | | | | | | | | | | |
| LEAST WEASEL | | | | | | | | 3 | *(1) | | |
| WEASEL SPECIES | | | | | | | | | | | |
| MINK | | | | | | | | | | | |
| BADGER | | | | | | | | | | | |
| STRIPED SKUNK | | | | | | | | | | | |
| RIVER OTTER | | | | | | | | | | | |
| WOODLAND CARIBOU | | | | | | | | | | | |
| MULE DEER | | | 12 | | | | | | | | |
| WHITE-TAILED DEER | + | | 58 | 7 | *(15) | 1 | *(8) | *(11) | 51 | | |
| DEER SPECIES | | | | | | *(3) | | | | | |
| MOOSE | | | | | | | | | | | |
| ELK | | | | | | | | | | | |
| PRONGHORN | | | 48 | | | | 59 | | | | |
| TOTAL SPECIES | 7 | 4 | 7 | 7 | 5 | 8 | 13 | 9 | 5 | | |

1-2. SASKATCHEWAN CHRISTMAS MAMMAL COUNTS

| 14. CYPRESS HILLS P.P. 18 Dec. 1988 | 17. DOUGLAS P. PARK 26 Dec. 1988 | 18. DUVAL 27 Dec. 1988 | 19. ELROSE-KYLE 24 Dec. 1988 | 20. ENDEAVOUR 25 Dec. 1988 | 21. ESTEVAN 24 Dec. 1988 | 22. FORT QU'APPELLE 19 Dec. 1988 | 23. FORT WALSH 17 Dec. 1988 | 24. FRENCHMAN RIVER 18 Dec. 1988 | LOCALITY & DATE SPECIES |
|--|-------------------------------------|---------------------------|---------------------------------|-------------------------------|-----------------------------|-------------------------------------|--------------------------------|-------------------------------------|----------------------------|
| | | | | | | | | | MASKED SHREW |
| | | | | | | | | | SHREW SP. |
| | | *(5) | | | | | 2 | + | NUTTALL'S COTTONTAIL |
| | 4 | *(5) | 1 | | | | | | SNOWSHOE HARE |
| | | *(30) | | | *(3) | + | 2 | | WHITE-TAILED JACK RABBIT |
| | | | | | | | | | WOODCHUCK |
| | | | | 1 | | | | | RICHARDSON'S G. SQUIRREL |
| | | | | | d(1) | | | | GREY SQUIRREL |
| 2 | | | | 3 | | 5 | 83 | | FOX SQUIRREL |
| | | | | | | | | | RED SQUIRREL |
| | | | | | | | D(1) | | N. FLYING SQUIRREL |
| | | | | | | + | | | N. POCKET GOPHER |
| | | | | | | | | *(4) | BEAVER |
| | | | | | | | | | DEER MOUSE |
| | | | | | | | | | GAPPER'S RED-BACKED VOLE |
| | | L(2) | | | | 3 | | | MUSKRAT |
| | | | | | 1 | | | | MEADOW VOLE |
| | | | | | | | | | VOLE SPECIES |
| | | *(11) | | | *(2) | | *(4) | | MOUSE SPECIES |
| | | | | | | | | | NORWAY RAT |
| | | | | | | + | | | HOUSE MOUSE |
| | | | | | | 1 | 3 | 2 | PORCUPINE |
| | 1 | *(7) | | | | + | 27 | 1 | COYOTE |
| | | | | | | | | | WOLF |
| | | *(3) | | | | + | *(1) | 2 | RED FOX |
| | | | | | | | | | FISHER |
| | | | | | | | | | ERMINE |
| | | *(1) | | | | | 1 | | LONG-TAILED WEASEL |
| | | *(2) | | | | | | | LEAST WEASEL |
| | | *(2) | | | | | *(1) | | WEASEL SPECIES |
| | | | | | | + | *(2) | | MINK |
| | | | | | | | | + | BADGER |
| | | | | | | | S(1) | | STRIPED SKUNK |
| | | | | | | | | | RIVER OTTER |
| | | | | | | | | | WOODLAND CARIBOU |
| | 12 | | | | | | 68 | 80 | MULE DEER |
| 8 | 8 | *(9) | | | 15 | + | 39 | 55 | WHITE-TAILED DEER |
| | | | | | | | | | DEER SPECIES |
| 1 | | | | | | | *(2) | | MOOSE |
| | | | | | | | 13 | | ELK |
| | | | | | | | | 260 | PRONGHORN |
| 3 | 4 | 10 | 1 | 2 | 4 | 10 | 15 | 9 | TOTAL SPECIES |

Table 1-3. SASKATCHEWAN CHRISTMAS MAMMAL COUNTS

| SPECIES | LOCALITY & DATE | 25. GARDINER DAM 19 Dec. 1988 | 26. GLAMIS-WISETON 01 Jan. 1989 | 27. GOOD SPIRIT LAKE 21 Dec. 1988 | 28. GOVENLOCK 18 Dec. 1988 | 29. GRAND CENTRE 26 Dec. 1988 | 30. GRASSLAND N.P. 16 Dec. 1988 | 32. HUMBOLDT 26 Dec. 1988 | 33. INDIAN HEAD 30 Dec. 1988 | 34. KAMSACK 04 Jan. 1989 |
|--------------------------|-----------------|----------------------------------|------------------------------------|--------------------------------------|-------------------------------|----------------------------------|------------------------------------|------------------------------|---------------------------------|-----------------------------|
| MASKED SHREW | | | | | | | | | | |
| SHREW SP. | | | | | | | | | | |
| NUTTALL'S COTTONTAIL | | 2 | | | 17 | | 4 | | | |
| SNOWSHOE HARE | | *(1) | | *(26) | | *(5) | | *(8) | | |
| WHITE-TAILED JACK RABBIT | | 4 | 4 | *(11) | 3 | | 4 | *(20) | 2 | |
| WOODCHUCK | | 1 | | | | | | | | |
| RICHARDSON'S G. SQUIRREL | | | | | | | | | | |
| GREY SQUIRREL | | | | | | | | | | |
| FOX SQUIRREL | | | | | | | | | | |
| RED SQUIRREL | | | | 3 | | 8 | | | | |
| N. FLYING SQUIRREL | | | | 1 | | | | | | |
| N. POCKET GOPHER | | | | D(3) | | | | | | |
| BEAVER | | | | L(1) | | | | | | |
| DEER MOUSE | | | | | | | | | | |
| GAPPER'S RED-BACKED VOLE | | | | | | | | | | |
| MUSKRAT | | | | | | | | | | |
| MEADOW VOLE | | | | | | | | | | |
| VOLE SPECIES | | | | *(2) | * | *(1) | | | | |
| MOUSE SPECIES | | *(4) | | | | | | | | |
| NORWAY RAT | | | | | | | | | | |
| HOUSE MOUSE | | | | | | | | | | |
| PORCUPINE | | | | *(3) | | | 2 | *(1) | 1 | |
| COYOTE | | *(4) | | *(8) | 4 | | 20 | *(6) | 1 | 2 |
| WOLF | | | | | | | | | | |
| RED FOX | | *(1) | | *(1) | | | *(2) | *(3) | 2 | |
| FISHER | | | | | | | | | | |
| ERMINE | | | | *(1) | | | | | | |
| LONG-TAILED WEASEL | | | | | | | | | 2 | |
| LEAST WEASEL | | | | *(1) | | *(1) | | | | |
| WEASEL SPECIES | | *(2) | | | *(1) | | | *(1) | | |
| MINK | | *(1) | | | | | *(1) | | | |
| BADGER | | | | | | | | | | |
| STRIPED SKUNK | | | | | | | | | | |
| RIVER OTTER | | | | | | | | | | |
| WOODLAND CARIBOU | | | | | | | | | | |
| MULE DEER | | 23 | | | 13 | | 20 | | | |
| WHITE-TAILED DEER | | 26 | | 2 | 12 | *(4) | 14 | *(6) | 2 | 4 |
| DEER SPECIES | | | | | | | | | | |
| MOOSE | | | | | | | | | | 2 |
| ELK | | | | | | | | | | |
| PRONGHORN | | | | | 123 | | 144 | | | |
| TOTAL SPECIES | | 11 | 1 | 13 | 8 | 5 | 9 | 7 | 6 | 3 |

e 1-4. SASKATCHEWAN CHRISTMAS MAMMAL COUNTS

| 38. KUTAWAGAN LAKE 03 Jan. 1989 | 39. LA RONGE 27 Dec. 1988 | 40. LAST MOUNTAIN L. 26 Dec. 1988 | 41. LEADER 26 Dec. 1988 | 44. LUSELAND 02 Jan. 1989 | 46. MARSDEN 26 Dec. 1988 | 47. MAYMONT 21 Dec. 1988 | 48. MELFORT 27 Dec. 1988 | 49. MELVILLE 25 Dec. 1988 | LOCALITY & DATE SPECIES |
|------------------------------------|------------------------------|--------------------------------------|----------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|------------------------------|----------------------------|
| | | | | | | | | | MASKED SHREW |
| | | | | | | | | | SHREW SP. |
| | | | 1 | | | | | | NUTTALL'S COTTONTAIL |
| | | *(1) | | | | 2 | 2 | | SNOWSHOE HARE |
| 3 | | 2 | | 1 | 1 | 3 | | | WHITE-TAILED JACK RABBIT |
| | | | | | | | | | WOODCHUCK |
| | | | | | | | | | RICHARDSON'S G. SQUIRREL |
| | | | | | | | | | GREY SQUIRREL |
| | | | | | | | | | FOX SQUIRREL |
| | + | | | | | | | | RED SQUIRREL |
| | | | | | | | | | N. FLYING SQUIRREL |
| | | | | | | | | | N. POCKET GOPHER |
| | | | | | | | | | BEAVER |
| | | | | | | | | | DEER MOUSE |
| | | | | | | | | | GAPPER'S RED-BACKED VOLE |
| | + | | | | | | | | MUSKRAT |
| | | | | | | | | | MEADOW VOLE |
| | | | | | | | | | VOLE SPECIES |
| | | * | 4 | | | | + | | MOUSE SPECIES |
| | | | | | | | + | | NORWAY RAT |
| | | | | | | | + | | HOUSE MOUSE |
| | | 1 | | | | | | | PORCUPINE |
| | | 3 | 2 | | | 2 | | + | COYOTE |
| | | | | | | | | | WOLF |
| | | 1 | | | | | | 1 | RED FOX |
| | | | | | | | | | FISHER |
| | | | | | | | | | ERMINE |
| | | | | | | 1 | | | LONG-TAILED WEASEL |
| | | | | + | | | | | LEAST WEASEL |
| *(1) | | *(2) | | | | | | + | WEASEL SPECIES |
| | | *(1) | | | | | | | MINK |
| | | | | | | | | | BADGER |
| | | | | | | | | | STRIPED SKUNK |
| | | | | | | | | | RIVER OTTER |
| | | | | | | | | | WOODLAND CARIBOU |
| | | | 100 | | + | | | | MULE DEER |
| 2 | | * | 10 | + | 3 | 5 | + | 1 | WHITE-TAILED DEER |
| | | | | | | | | | DEER SPECIES |
| | | | | | | | | | MOOSE |
| | | | | | | | | | ELK |
| | | | 30 | | | | | | PRONGHORN |
| 3 | 2 | 9 | 6 | 3 | 3 | 5 | 4 | 4 | TOTAL SPECIES |

Table 1-5. SASKATCHEWAN CHRISTMAS MAMMAL COUNTS

| SPECIES | LOCALITY & DATE | 50. MOOSE JAW 26 Dec. 1988 | 53. OUTLOOK 16 Dec. 1988 | 54. PIKE LAKE 30 Dec. 1988 | 55. PREECEVILLE 26 Dec. 1988 | 57. PRINCE ALBERT (2) 18 Dec. 1988 | 58. PRINCE ALBERT N.P. 18 Dec. 1988 | 59. RAYMORE 25 Dec. 1988 | 60. REGINA 26 Dec. 1988 | 61. ROUND LAKE 03 Jan. 1989 |
|--------------------------|-----------------|-------------------------------|-----------------------------|-------------------------------|---------------------------------|---------------------------------------|--|-----------------------------|----------------------------|--------------------------------|
| MASKED SHREW | | | | | | | | + | | |
| SHREW SP. | | | | | | | 1 | | | |
| NUTTALL'S COTTONTAIL | | | | | | | | | | |
| SNOWSHOE HARE | | 5 | * | *(7) | * | 3 | *(41) | 2 | *(10) | 1 |
| WHITE-TAILED JACK RABBIT | | 5 | | 2 | | *(1) | | 1 | | 1 |
| WOODCHUCK | | | | | | | | | | |
| RICHARDSON'S G. SQUIRREL | | | | | | | | | | |
| GREY SQUIRREL | | | | | | | | | | + |
| FOX SQUIRREL | | | | | | | | | | |
| RED SQUIRREL | | | | | | 8 | 112 | | 1 | 5 |
| N. FLYING SQUIRREL | | | | | | | | | | |
| N. POCKET GOPHER | | | | | | | | | | |
| BEAVER | | | | | | L(1) | | L(2) | | |
| DEER MOUSE | | | | | | | *(1) | 1 | | |
| GAPPER'S RED-BACKED VOLE | | | | | | | | 1 | | |
| MUSKRAT | | | | | | L | | L(1) | | |
| MEADOW VOLE | | | | | | | | | | |
| VOLE SPECIES | | | | | | | *(3) | | | |
| MOUSE SPECIES | | *(25) | | | | *(6) | | | | *(6) |
| NORWAY RAT | | | | | | | | | | |
| HOUSE MOUSE | | | | | | | | 1 | | |
| PORCUPINE | | | | | | * | 2 | 2 | | |
| COYOTE | | *(14) | | *(2) | *(2) | *(2) | *(2) | 7 | *(4) | *(17) |
| WOLF | | | | | | | | | | |
| RED FOX | | *(7) | | | 1 | *(3) | 2 | 1 | 3 | *(6) |
| FISHER | | | | | | | 1 | | | |
| ERMINE | | | | | | 1 | | | | *(1) |
| LONG-TAILED WEASEL | | *(2) | | *(3) | | | | | | *(13) |
| LEAST WEASEL | | | | | | | | | | *(1) |
| WEASEL SPECIES | | | * | | * | | *(2) | *(3) | | |
| MINK | | *(2) | | | | | 1 | | | *(2) |
| BADGER | | | | | | | | | | |
| STRIPED SKUNK | | | | | | | | S(1) | | |
| RIVER OTTER | | | | | | | 2 | | | |
| WOODLAND CARIBOU | | | | | | | | | | |
| MULE DEER | | | 1 | *(20) | | | | | | |
| WHITE-TAILED DEER | | *(4) | | | *(3) | *(2) | 2 | 7 | 7 | *(27) |
| DEER SPECIES | | | | | | | *(5) | | *(4) | |
| MOOSE | | | | | | | 2 | | | |
| ELK | | | | | | | 63 | | | |
| PRONGHORN | | | | | | | | | | |
| TOTAL SPECIES | | 8 | 3 | 5 | 5 | 11 | 16 | 14 | 5 | 12 |

1-6. SASKATCHEWAN CHRISTMAS MAMMAL COUNTS

| 64. SCOTT 02 Jan. 1989 | 65. SHAUNAVON 17 Dec. 1988 | 67. SKULL CREEK 26 Dec. 1988 | 68. SNOWDEN 30 Dec. 1988 | 70. SPINNEY HILL 31 Dec. 1988 | 71. SPRING VALLEY 29 Dec. 1988 | 73. SQUAW RAPIDS 22 Dec. 1988 | 74. ST. WALBURG 26 Dec. 1988 | 75. TISDALE 25 Dec. 1988 | LOCALITY & DATE SPECIES |
|---------------------------|-------------------------------|---------------------------------|-----------------------------|----------------------------------|-----------------------------------|----------------------------------|---------------------------------|-----------------------------|----------------------------|
| | | | | | | | | | MASKED SHREW |
| | | | | | | | | | SHREW SP. |
| | *(3) | 1 | | | | | | | NUTTALL'S COTTONTAIL |
| | | | *(6) | | | *(4) | *(30) | | SNOWSHOE HARE |
| *(7) | 1 | * | 1 | * | 7 | | | 2 | WHITE-TAILED JACK RABBIT |
| | | | | | | | | | WOODCHUCK |
| | | | | | + | | | | RICHARDSON'S G. SQUIRREL |
| | | | | | | | | | GREY SQUIRREL |
| | | | | | | | | | FOX SQUIRREL |
| | | 1 | 2 | | | 32 | *(3) | | RED SQUIRREL |
| | | | | | | | | | N. FLYING SQUIRREL |
| | | | | | | | | | N. POCKET GOPHER |
| | | | | | | L(2) | | | BEAVER |
| | | | | | | | | | DEER MOUSE |
| | | | | | | | | | GAPPER'S RED-BACKED VOLE |
| | | | | | | | | | MUSKRAT |
| | 1 | * | | | | | | | MEADOW VOLE |
| | | * | *(2) | | * | * | *(3) | | VOLE SPECIES |
| | | | | | | | | | MOUSE SPECIES |
| | | | | | | | | | NORWAY RAT |
| *(2) | | *(2) | | | | 1 | | | HOUSE MOUSE |
| | *(2) | 1 | | | 2 | 2 | | | PORCUPINE |
| | | | | | | *(1) | | | COYOTE |
| *(1) | *(1) | *(1) | *(1) | * | * | * | *(3) | | WOLF |
| | | | | | | | | | RED FOX |
| | | | | | | | | | FISHER |
| | | | | | | | | | ERMINE |
| | | | | | + | | | | LONG-TAILED WEASEL |
| | | | | | | | | | LEAST WEASEL |
| | *(1) | *(3) | *(2) | * | | * | | | WEASEL SPECIES |
| | | *(1) | | | | | | | MINK |
| | | *(1) | | | D(1) | | | | BADGER |
| | | | | | | | | | STRIPED SKUNK |
| | | | | | | *(1) | | | RIVER OTTER |
| | | | | | | | | | WOODLAND CARIBOU |
| | | 2 | | | + | | | | MULE DEER |
| (3) | 3 | 13 | *(5) | | | * | *(3) | | WHITE-TAILED DEER |
| | | | | * | | | | | DEER SPECIES |
| | | | | | | * | | | MOOSE |
| | | | | | | * | | | ELK |
| | | 24 | | | | | | | PRONGHORN |
| 4 | 7 | 14 | 7 | 4 | 8 | 13 | 5 | 1 | TOTAL SPECIES |

Table 1-7. SASKATCHEWAN CHRISTMAS MAMMAL COUNTS

| SPECIES | LOCALITY & DATE | | | | | | | | |
|--------------------------|------------------------------|---------------------------------|-------------------------------|----------------------------|-----------------------------|-------------------------------------|------------------------------|-----------------------------|--------------|
| | 76. TOMPKINS 29 Dec. 1988 | 77. TURTLE LAKE 26 Dec. 1988 | 78. VAL MARIE 20 Dec. 1988 | 79. WARMAN 26 Dec. 1988 | 80. WEYBURN 17 Dec. 1988 | 81. WHITE BEAR LAKE 20 Dec. 1988 | 83. WOLSELEY 01 Jan. 1989 | 84. YORKTON 17 Dec. 1988 | TOTAL COUNTS |
| MASKED SHREW | | | | | | | | | |
| SHREW SP. | | | | | | | | | |
| NUTTALL'S COTTONTAIL | 1 | | 8 | | | | | | |
| SNOWSHOE HARE | * | * | | *(2) | | 2 | + | | |
| WHITE-TAILED JACK RABBIT | 2 | | | *(1) | 2 | | 6 | | |
| WOODCHUCK | | | | | | | | | |
| RICHARDSON'S G. SQUIRREL | | | | | | | | | |
| GREY SQUIRREL | | | | | | | | | |
| FOX SQUIRREL | | | | | 1 | | | | |
| RED SQUIRREL | | * | | | | | | | |
| N. FLYING SQUIRREL | | | | | | | | | |
| N. POCKET GOPHER | | | | | | | | | |
| BEAVER | | | | | | | | | |
| DEER MOUSE | | | | | | | | | |
| GAPPER'S RED-BACKED VOLE | | | | | | | | | |
| MUSKRAT | | * | | | | | | | |
| MEADOW VOLE | | | | | | | | | |
| VOLE SPECIES | | * | | | | | | | |
| MOUSE SPECIES | | | | *(1) | | | | | |
| NORWAY RAT | | | | | | | | | |
| HOUSE MOUSE | | | | | | | | | |
| PORCUPINE | | | | | | | | | |
| COYOTE | 4 | * | 1 | | | 1 | | 1 | |
| WOLF | | * | | | | | | | |
| RED FOX | | | 1 | *(2) | + | | 1 | 2 | |
| FISHER | | | | | | | | | |
| ERMINE | | | | | | | | | |
| LONG-TAILED WEASEL | | * | | | | | | | |
| LEAST WEASEL | | | | | | | | | |
| WEASEL SPECIES | | | | | | | | | |
| MINK | | * | | | | | | | |
| BADGER | | | | | | | | | |
| STRIPED SKUNK | | | | | | | | | |
| RIVER OTTER | | | | | | | | | |
| WOODLAND CARIBOU | | | | | | | | | |
| MULE DEER | 32 | | 5 | | | | | | |
| WHITE-TAILED DEER | 9 | * | 14 | *(2) | 5 | | 6 | | |
| DEER SPECIES | | | | | | | | | |
| MOOSE | | | | | | | | | |
| ELK | | | | | | | | | |
| PRONGHORN | 185 | | | | | | | | |
| TOTAL SPECIES | 7 | 9 | 5 | 5 | 4 | 2 | 4 | 2 | |

YOUNG NATURALISTS



can White Pelican

Mark Magpie and Phillipa Fox were walking along the mud flats on the shore of Redberry Lake. Suddenly Phillipa

asked, "What happened here?" she asked.

"Looks like somebody had a sleeping cow in here," Mark answered.

"What?" said Phillipa. "That doesn't make sense."

"A bulldozer. Get it?" said Mark Magpie.

Phillipa groaned. "You really are a brain Mark."

"Right, bird brain, birds on the brain, but about birds alright," he babbled.

Phillipa sniffed around the edges of the clearing up area. "The bulldozer hasn't been here for a while," she said.

"Maybe it won't come back. Anyway let's get going. We've got to find Eli Pelican and celebrate."

Just then their friend, Eli Pelican whooshed out of the sky and thumped onto the ground beside Phillipa. "Hi! I thought I saw you two."

"Congratulations, felicitations!" yelled Mark. "Way to go, getting off the list of threatened species."

"We're so excited for you. White Pelicans are the first species ever to be taken off that terrible list," said Phillipa.

"Thanks," said Eli. "It's great to have enough White Pelicans around so that we aren't in danger of extinction. But things, like the bulldozer that was here, can still mean real trouble for us. Some men wanted to build a bunch of vacation cottages right near where we nest. People who care about us birds wrote letters and made phone calls. Was I ever glad when the government made them take the bulldozer away?"

"You sure they're not coming back?" asked Phillipa Fox.

"They are still trying to get permission to come back. This kind of thing is trouble for all the birds that nest at Redberry Lake. People who care can really make a difference."

"But what's so bad about having people live near you?" asked Mark. "Us magpies nest near people all the time. Just 'cause you look like flying white dinosaurs with baggy beaks, that makes you special?"

Eli ruffled his feathers and wouldn't answer.

"Use your bird brain Mark. Pelican babies haven't any feathers," said Phillipa Fox. "If people scare the mother pelican off her nest, her babies often die."

"Hey, I'm sorry Eli, me and my big mouth. I didn't realize."

"Oh no! Look," said Phillipa Fox. "Those men are heading right for that island full of pelican nests. There's going to be a whole bunch of dead baby pelicans if we don't do something."

"I'll stop them!" screeched Mark. Like a black and white arrow he streaked out across the mud flats toward the men.

Before he got there the men had stopped and put up a tripod with a spotting scope on it. Mark circled them once and flew back to his friends.

"Those guys were just looking," said Mark. "They even know enough to stay way back. I guess they're better bird brains than me, anyway they know more about pelicans than I did. Right Eli?"

"Right," said Eli. "We need all the people friends we can get."

"Whew, that chase made me thirsty," said Mark. "Excuse me while I drink."

"Wait!" said Phillipa, but she was late. Mark had already taken a sip.

"Blah! Yuk!" He spluttered. "Wrong with the water?" Frantica rubbed his beak on some grass.

"I tried to warn you," said Phillipa. "Redberry Lake is briny. It's a salt lake."

"Whew! It's awful," said Mark. "There couldn't be any food in Redberry Lake. Birds that live in briny water sure aren't as brainy in my books. Oops, sorry I forgot to tell you."

"You'd better say sorry," said Phillipa. "Redberry Lake birds aren't so choosy. There are lots of little shrimp-like creatures some of the birds eat. Redberry Lake has great islands to nest on. As long as we have good nesting islands, the pelicans don't mind traveling for fish dinners. Sometimes our long legs carry us a hundred kilometers to a good fishing place. If people don't bother us too much we'll do just fine."

"Let's forget about people for now and celebrate!" said Phillipa.

"Whee!" cheered Mark. "It's time for a pelican party!"

— *Karen Rispin*, Box 507, Dalmatien, Saskatchewan. S0K 1E0

LETTERS

"WESTERN RED LILY"

The December 1987 issue of the *Blue Jay* has an article titled "Plants of the Last Mountain Lake National Wildlife

Area" which mistakenly uses the name Western Wood Lily for the provincial floral emblem (p. 234).

The provincial floral emblem for the Province of Saskatchewan is

ern Red Lily as designated in the Saskatchewan Floral Emblem Act of 11 November 1980, passed by the Saskatchewan Legislative Assembly and subsequently given Royal Assent by the Lieutenant Governor on 12 December 1980. However the Act printed by the Government Service Bureau for distribution was found to contain an error in the botanical description of the plant, which repeated the word "andinum." This error necessarily required reprinting of the Act for distribution and this also necessitated the date on the final print to be shown as May 1981, now regarded as the official documentation of the Saskatchewan Floral Emblem Act (*Lilium philadelphicum* L. var. *andinum* (Nutt.) Ker. or the Western Red

Lily). It may be further noted that in the summer of 1980 the provincial government instituted a plan whereby organizations and/or groups were given grants to promote acceptable projects. The Saskatchewan Natural History Society obtained such a grant and in conjunction with the Department of Education distributed a picture in full colour, together with pamphlet to each classroom of grades 1 through 6 of public, separate and private schools in the province. Some 6500 photographs were distributed in this promotion. — *Fenton Vance, for Kathleen Gauer, President, Regina Natural History Society.*

EDITOR'S NOTE

A search of the standard botanical references which give common names for North American plants, yielded only one source which gave the name "Western Red Lily" for a variety of the species *Lilium philadelphicum* L. [*Wild plants of the Canadian Prairies* by A.C. Budd and K.F. Best]. The common name "Wood Lily" applies to the species and includes both varieties *philadelphicum* and *andinum* (Nutt.) Ker. The species *Lilium umbellatum* Pursh is referred to as the "Western Red Lily" by Britton and Brown [*An illustrated flora of the northern United States and Canada*]. This species was subsequently revised to the variety *andinum* of the species *philadelphicum*, but subsequent authors did not retain with the variety the name that had been applied to the species. One of our leading botanists has stated "It would seem that the equivalence *L. philadelphicum* L. var. *andinum* (Nutt.) Ker. ⁵ Western Red Lily is only valid by act of the Saskatchewan Legislature, and does not command the allegiance of botanists outside Saskatchewan."

It is common practice for botanists to state the manual(s) which they are following (in addition to giving the authority of the description of the original species and/or subspecies, variety, etc. with the latin name), especially when they are giving an extended list of species. The authors of the above-mentioned article stated that the manual which they followed for common names was Moss' Flora of Alberta. Technically they were quite correct in calling the plant in question the Western Wood Lily. Other common names which botanical texts have applied to the variety *andinum* include Prairie-Lily, Wood Lily, Red Lily and Wild Orange-red Lily. Also, the authors of the article were correct in stating that this species is the provincial floral emblem [The Floral Emblem Act, 1981. 1980-81, c. F-17.1, s. 2; 1980-81, c.83, s. 16]. However, the combination of these two technically correct facts, creates a somewhat fallacious statement. Is it the combination of politics with science?



Western Red Lily

Suggestions from the Blue Jay Booksh

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CHRISTMAS BIRD AND MAMMAL COUNTS 1989 - 1990

Count period is from Saturday 16 December 1989 to Wednesday 03 January inclusive. Count area should be a circle 24 km (15 miles) in diameter. Counts be a minimum of three hours in duration, preferably all day. Count forms and information will be mailed in early December to compilers who submitted counts in 1988. Anyone else wishing to do a count or to obtain further information should contact:

Wayne C. Harris
Box 414
Raymore, Saskatchewan
S0A 3J0

Reports of counts should be sent to Wayne Harris as soon as possible after they are taken. To be included in the report in the March Blue Jay Bookshelf must be received by Wayne by 10 January 1990 at the very latest.



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